St. Martin Catholic Social Apostolate: Laikipia County, Kenya

Report on

An Investigation of the Prevalence and Associated Risk Factors for Selected Mental Disorders among Adults in Laikipia County

Conducted by

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PREFACE

Mental disorders continue to be a major problem around the world taking a toll on global health and on social and economic functioning. Mental disorders including clinical depression and alcohol abuse disorders contribute significantly to global illness, disability and death. Prevention of mental health challenges is a goal that can significantly improve the health and safety of well-being in the society.

St. Martin Catholic Social Apostolate is a faith-based organization located in Nyahururu town, Laikipia County in Kenya. It was established in 1997 with an intention to strengthen community capacity to care for and empower vulnerable people in Laikipia, Nyandurua and Baringo Counties in Kenya. One of its mandate is to improve the mental welfare of communities in Laikipia County. Within this area, its prime objective is to provide communities and individuals with preventive, promotive, rehabilitative and curative mental health services. Another key mandate is to facilitate, conduct, promote and coordinate research and dissemination of findings on mental health challenges in Kenya.

It is hoped that this study will form a basis for Laikipia County government policies and legislations enactment concerning mental health welfare of the people in this County. We recommend that the County government prioritize mental health financing in its forthcoming annual budget. Furthermore, the findings will strengthen priority setting and resource allocation in mental health at the national level. Moreover, the findings of this study will assist program implementers in the area of mental health to tailor their interventions towards addressing the burden of mental health disorders in Laikipia County and in the neighbouring counties. Finally, the report will inform St. Martin CSA in evidence-based mental health programming.

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LIST OF ABBREVIATIONS AND ACRONYMS

AUDIT:	Alcohol Use Disorders Identification Test
AUD:	Alcohol Use Disorders
BRAC:	Bangladesh Rural Advancement Committee
CSA:	Catholic Social Apostolate
CSOs:	Community-based Organizations
DSM-5:	Diagnostic and Statistical Manual of Mental Disorder-5 (DSM-5)
NACADA:	National Authority for the Campaign against Alcohol and Drugs Abuse
MDD:	Major Depressive Disorder
MOH:	Ministry of Health
PHQ-9:	Patient Health Questionaire-9
PTSD:	Posttraumatic Stress Disorder
SBQ_R:	Suicidal Behaviours Questionnaire-Revised
US:	United States
WHO:	World Health Organization

EXECUTIVE SUMMARY

This report presents the findings of a study on the prevalence and factors associated with selected mental health disorders in Laikipia County, Kenya. The study covered Laikipia West and Nyahururu sub-counties. The purpose of this study was to establish the prevalence and associated factors for selected mental disorders. Additionally, this study sought to document some evidenced-based interventions to arrest mental health challenges among Adults in Laikipia County.

In the recent past, there has been a general rise in the cases of mental disorders across the globe. Locally, the prevalence of depression, suicide, and alcohol and substance abuse has been rapidly increasing. Despite this, mental health remains neglected with high stigma associated with mental health disorders. In Laikipia County, information on the prevalence, severity, and associated risk and protective factors for mental disorders is scarce. The objectives of the study included: To establish the prevalence of selected mental disorders, analyze the risk and protective factors for selected mental disorders, and establish the association between clinical depression, suicidal behaviours and alcohol abuse disorder in Laikipia County. The study adopted a descriptive survey design targeting a sample of 335 participants. The sample was selected using convenience sampling. Patient Health Questionnaire (PHQ-9), Suicidal Behaviours Questionnaire-Revised and Alcohol Use Identification Test were used to collect quantitative data from participants. The data was analyzed using univariate and bivariate analysis.

Results indicate that the prevalence of clinical depression, and alcohol use disorder is high among participants. Risk factors for depression are being female, married, divorced, or separated, not being in the workforce, and being of college education level while protective factors are being employed and strong family support. The risk factors for alcohol use disorder are being male, not in the workforce, those aged 40 to 49, and being married, separated or divorced whereas the protective factors are attending religious service and good health status. Risk factors for suicidal behavior are having primary, secondary, or college level of education, financially constrained, not in the workforce, and poor health whilst protective factors are being affiliation to a religious service, level of income of between Kes 20,000, to Kes 40,000, and having strong family support. Stakeholders in mental health may use these findings as a basis for programming and promotion of preventive and curative measures for mental health disorders in Laikipia County and beyond.

INTRODUCTION AND BACKGROUND

1.1. Background to the Study

In the recent past, there has been disproportionate increase in global mental health burden. According to the World Health Organization (2003), many countries do not prioritize mental health as a vital segment of their health system. Mental health is highly underfunded with 62% of developing countries and 16% of developed countries spending less than 1% of their health budgets on mental health. While the physical, social and economic burden of mental health remains high, mental health workers account for about 1% of the global health work force (American Psychiatric Association (2019). This trend is an indicator for the global neglect of mental health among the general population. However, the global research community continues to attempt to bring out the prevalence of various mental disorders.

Even though most mental health disorders go unreported, the Institute of Mental Health Metrics and Evaluation reports high prevalence of various mental disorders globally (Ritchie and Roser, 2019). This report indicated that by 2017 10.7% of the global population lived with a mental disorder with 3.4% being depression, 3.8% anxiety disorders, 0.2% eating disorders, 1.4% alcohol use disorders and 0.9% non-alcohol drug disorders. The National Alliance on Mental Illness (2018) reported on the prevalence of mental disorders in the general population of the United States of America. This report indicated that 19.1% prevalence of anxiety disorders, 7.2% major depressive disorders, 3.6% posttraumatic stress disorder, 2.8% bipolar disorder and 1.4% of borderline personality disorders. The report further puts suicide prevalence among adults to 4.3%, 11% for young adults, 17.2% for high school students and 47.7 % for lesbian, gay and bisexual high school students. Among those who die of suicide, 90% were reported to have presented with mental health complication.

A report by Carl (2018) on the status of mental health in England indicated that 5.9% of the population presented with generalized anxiety disorder, 3.3% depressive episode, 2.4% phobias and 1.3% obsessive-compulsive disorder. Suicidal ideation among the population stood at 5.4% with 0.7% reporting to have attempted suicide. The prevalence of mental disorders was higher for ages 16 to 54 compared to other ages with women reporting higher prevalence than men.

Asia too contributes significantly to the global burden of mental disorders. A national survey by the Institute of Mental Health (2018) on the status of mental health in Singapore revealed that the top 3 mental health conditions were major depressive episode at one in every 16 people followed by alcohol abuse at one in every 24 people and obsessive compulsive disorder at one in every 28 people. The survey also indicated that 18% of the youth in Singapore live with depression.

In Malaysia, a national survey by the Institute for Public Health (2015) showed that 29.2% of adults have a mental health condition. The report found depression to be the highest among adolescents aged 13 to 17 years. The study also revealed that 10.1% of the youths had attempted suicide. A study by Hartini, Fordana, Ariana and Wardana (2018) in Indonesia found that 3.7% of the population suffered from depression while 6% suffered from anxiety with 19% of the youths having suicidal thoughts. The report further indicated that 45% of the youth with suicidal thoughts had attempted suicide.

In Africa, there is significant stigma associated with mental disorders resulting to many unreported cases. However, in the recent past studies on prevalence of mental disorders have been conducted across different countries with varying results. An analysis of the various categories of mental health patients in mental health institutions by the Ministry of Health in Ghana showed varying prevalence for mental disorder.

Schizophrenia, schizotypal disorders and delusional disorders accounted for 32%, mental behavioural disorders due to psychoactive substance accounted for 26%, mood disorders 19% while stress related disorders accounted for 1% of all the mental health patients (Ministry of Health, 2013). In Nigeria Suleiman (2016) reported that 20 to 30% of the population suffers from some kind of mental disorder.

Just like other African countries, Kenya experiences high prevalence of mental disorders. The WHO (2014) report puts Kenya the fourth most depressed country in Africa with an estimated 1.9 million people suffering from depression. The Kenya mental health policy (2015-2030) estimated that 20-25% of patients seeking primary health care present with symptoms of mental illness. NACADA (2017) reported 10.4% prevalence for alcohol use disorders, 3.1% for miraa and 0.8% for cannabis among Kenyans aged 15- 65 years. From the various reports highlighting the prevalence of mental disorders across various regions, it is evident that depression and anxiety are among the most prevalent mental health disorders globally. On the other hand, alcohol use disorders have been reported to be very high in Rift Valley region of Kenya where Laikipia County is located. Understanding the prevalence of these selected disorders may be helpful in making cross-national comparisons and predicting the pattern in the prevalence of other mental health disorders.

High prevalence of mental disorders indicated in various reports for various regions have been associated with risk factors. The WHO (2017) indicated that an interaction of biological, social and psychological factors influence depression. More so, WHO revealed that people who have been exposed to adverse events such as bereavement, unemployment, and psychological trauma are more vulnerable to developing depressive symptoms. With reference to Europe, Gigantesco, Ferrante, Baldissera and Masocco conducted a surveillance study among 18-69 olds in Italy. Their study focused on depression and behaviour- related risk factors. They found out that lack of engagement in active leisure activities, cigarette use, obesity, and excessive use of alcohol were risk factors for depression. In alignment with WHO and Gigantesco et al. underlined gender, older age, poverty, deprivation due to no-formal employment, family breakdown, and lack of education, and death of a parent as risk factors for depression in a rural population in Uganda (Kinyanda, et al., 2011). Similarly, a study by Maideen, Sidik, Rampal and Mukhtar (2014) showed that depression was associated with war, lack of social support, material hardships, low socioeconomic status, low education, low self-esteem and work related issues. Njiru, Munene, and Oladipo (2018) reported that protective factors for depression among women living with HIV and Aids in Machakos County in Kenya are being financially stable, religious affiliation, and strong family support. The Kenya National Health Policy 2015-2030 report indicates that key risks factors for depression are experiencing traumatic events such as homicides, violence and conflicts (MOH, 2018). The risk and protective factors for depression remains minimally investigated in Laikipia County.

High prevalence of suicide was associated with sensational reporting of suicide by the media, uncomplicated availability of suicide means, violent conflicts in relationships and harmful use of alcohol (WHO, 2014). Additionally, employment, alcohol and substances use, dysfunctional families, neglect/abuse, and deviant peers, and incarceration are isolated as important risk factors for suicide while family and friends support, overall resilience, and academic achievement were classified as protective factors (Australian Government Department of Health, 2013). Consistent with Australian Government Department of Health findings, CDC (2019) indicate that individual, community, societal and environmental influences contribute to risk and

protective factors of suicide. Thus, factors such as family history of suicide, history of child abuse, loses (related to relationships, finances, and physical disabilities), and illnesses such as depression increased vulnerability of suicide. Further, CDC reported that cultural/religious beliefs, strong family bonds, access to health services and problem/conflict resolution skills reduced odds of suicide. In alignment with other studies, Pyler and Melander (2013) revealed likely triggers for suicidal behaviours are being diagnosed with substance abuse disorder, physical and sexual abuse, partner violence, lack of peer support, and having friends with substance abuse behaviour.

Just like depression and suicidal behaviours, various factors account for increased susceptibility to alcohol and substances use. SAMHSA (2019) reported that some risk and protective factors are unchangeable while others are changeable. SAMHSA enlisted examples of risk factor for alcoholism as income level, peer pressure, adverse childhood experiences, genetic predisposition, employment status, early exposure to alcohol among others. Furthermore, SAMHSA argued that protective and risk factors are interrelated and cumulative. Subsequently, these factors should be adequately examined for appropriate selection of interventions and evaluation of existing programmes. Pengpid and Peltzer (2019) in their national study seeking to establish the prevalence and associated risk factors for alcohol use affirmed that illnesses such as hypertension, tobacco use, being male, and being middle-aged increased the odds for alcohol abuse. Garza, Nigg, Konishi and Wagner 2018) conducted an investigation on protective factors of alcohol use among community providers and stakeholders in Hawai. The results revealed that social support, community involvement/activity, and resources are key protective factors of alcohol use for youth.

Due to the stigma associated with mental disorders and the low funding of mental health activities by the government, research on mental disorders remains sparing. Of the studies conducted on mental health in Kenya, no national survey on various mental health issues is evident. To build a national database on mental health issues, there is need to conduct both regional and national studies on prevalence of mental health disorders in order to inform policy and enhance service provision to the public. The current study will focus on Laikipia County with an attempt to bring out the prevalence and associated risk factors associated with mental disorders.

1.2 Objectives of the Study

The specific objectives of this study were:

1. To establish the prevalence of selected mental disorders among adults in Laikipia County.
2. To analyze the risk factors for selected mental disorders among adults in Laikipia County.
3. To investigate the protective factors for selected mental disorders among adults in Laikipia County.
4. To establish the association of clinical depression, suicidal behaviors and alcohol use disorder among adults in Laikipia County.
5. To recommend scientifically proven strategies and interventions for arresting selected mental disorders among adults in Laikipia County?

1.3 Rationale of the Study

Kenya is a mother of an estimated 50, 000 million people (KNBS, 2019). The number of people with mental illnesses continue to grow in Kenya. For instance, WHO

(2014) revealed that an estimated 1.9 million Kenyans suffered from depression. The KNBS (2018) reported that an estimated 421 deaths were due to suicide. According to NACADA (2017), approximately 12.2 of Kenyans adults with age range from 15 to 65 years suffer from alcohol use disorder. The MOH (2018) revealed that an estimated 25% of outpatients and about 40% of inpatients suffer from a certain mental illness. Further, the MOH reported that the most common mental illnesses in Kenya were depression, substances use, and anxiety.

The impacts for depression, suicide, and alcohol use disorder are far reaching. Evidence has established that mental illnesses can hinder optimal social, emotional and overall functioning of a person. Additionally, if unaddressed, there is likelihood of losing the most productive population in Kenya, and this may compromise the development of the nation. Also, failure to address these issues may lead to increased morbidity and mortality, increased health expenditure for families and communities which in turn results to a cycle of poverty among family members, and increased borrowing of the government to meet basic citizens services. Besides, the social, emotional, and psychological adverse effects on family members created by the patient cannot be underestimated.

The Kenya Mental Health Policy of 2015-2030 states, "Mental health is a key determinant of overall health and socio-economic development (MOH, 2018). It influences individual and community outcomes such as healthier lifestyles, better physical health, improved recovery from illness, fewer limitations in daily living, higher education attainment, greater productivity, employment and earnings, better relationships with adults and with children, more social cohesion and engagement and improved quality of life".

In line with this, the current study investigated the extent of mental health burden, and associated factors that predispose certain adults to developing mental disorders while others do not, and more so, in Laikipia County where limited information exists.

RESEARCH METHODOLOGY

2.1 Research Design

The study adopted a descriptive cross-sectional research survey design, chosen for its ability to use a larger sample of participants, which is key in generalizing the results to the entire County.

2.2 The Target Population

The target population for this study were adults aged between 20 and 55 years. Laikipia County has an estimated population of about 237149 in this age group, with ages 20 to 40 being 198861 while age 40 to 55 is 38288 (Laikipia County Second Integrated Plan 2018-2022).

2.3 Location of the Study

This study was conducted in Laikipia County. The County is located in the Rift Valley province of Kenya bordering Nakuru, Nyandarua, Baringo, Nyeri and Samburu Counties. Laikipia County is sub-divided into five sub-counties namely Laikipia East, Laikipia West, Laikipia North, Laikipia Central and Nyahururu. According to Laikipia County Second Integrated Plan 2018-2022, the county has a total population of about 541985 with 268608 males and 273377 females. The study area covered rural-urban

settlements including Malmanet, and Rumuruti divisions in Laikipia West Sub County. In these divisions, Gatero, Kanga A, Kanga B, Gakuyia, and Olojabet locations were selected. In Nyahururu sub-county, slums areas such as Donyo, Manguo, and Maina were included in the study. Market places in these areas were used as point of entry.

2.4 Sampling Procedures

Laikipia West and Nyahururu sub-counties were purposively selected, while the divisions were identified using simple random sampling. The participants were identified using convenience sampling because it allows for inclusion of research participants who are readily available and with desired characteristics.

2.5 Sample Size Determination

To get the required sample for this study, Yamane's formula was employed (Yamane, 1967). Yamane's formula is: $n=\frac{N}{1+N\,(e)2}$

Where n= desired sample size
N=the population size
e=error
In this study the population size is N=237 149 and e=0.05.

$n=\frac{237149}{1+237149\,(0.05)2}$

n= 399

The total sample size for this study was 399 participants selected across all the age groups of the target population. However, only 335 (84.0%) questionnaires were analyzed and approximately 64. 0 (16.0%) were discarded due to incompletion.

2.6 Data Collection Instruments

In this study, the socio-demographic questionnaire focused on drawing information concerning the participants' gender, age, and marital status, level of education, level of income, religious affiliation, and employment status of participants. Also, the Patient Health Questionnaire-9 (PHQ-9), a 9-item Likert self-administered questionnaire for assessing depression based on the Diagnostic and Statistical Manual of Mental Disorder-5 (DSM-5) criteria was used. The tool has been used in other studies showing satisfactory reliability. The diagnostic validity of the 9-item PHQ-9 was established in studies involving 8 primary care and 7 obstetrical clinics. PHQ-9 scores > 10 had a sensitivity of 88% and a specificity of 88% for Major Depressive Disorder (Kroenke et al., 2001). Reliability and validity of the tool have indicated it has sound psychometric properties. A study involving two different patient populations produced Cronbach alphas of .86 and .89. Results from these interviews showed that individuals who scored high (≥ 10) on the PHQ-9 were between 7 to 13.6 times more likely to be diagnosed with depression by the mental health professional. On the other hand, individuals scoring low (≤ 4) on the PHQ-9 had a less than a 1 in 25 chance of having depression (Kroenke & Spitzer, 2002). Scoring for this scale is done by assigning scores of 0, 1, 2, and 3, to the response categories of ―not at all, ―several days, ―more than half the days, and ―nearly every day, respectively. PHQ-9 total score for the nine items ranges from 0 to 27. A score of 0 to 4 shows none minimal depression, 5 to 9 shows mild, 10 to 14 moderate, 15 to 19 moderately severe and 20 to 27 severe depression.

In addition, the Suicidal Behaviours Questionnaire-Revised (SBQ-R) was used tin this study. The SBQ revised is a self-report 4-item scale addressing different

dimensions of sucidality in adolescents and adults. It focuses on suicidal behavior domains: lifetime ideation and attempt, recent frequency of ideation, suicide threats, and self-assessed likelihood of future suicidal behaviour (Bagge et al., 2001). The tool has been shown to have sound psychometric properties. Norming of the tool was done using 57 clinical outpatients and 86 undergraduate students. It was administered together with Reasons for Living Inventory (RFL) and the Scale for Suicide Ideation (SSI). Two weeks later, 30 undergraduates completed the SBQ again. Cronbach alphas were moderate (clinical sample = .75; nonclinical sample = .80). Test-retest correlations were also significant (r = .95). The SBQ and SSI were significantly correlated (r = .69). The SBQ and RFL were also significantly correlated (r = -.34), although modestly.

The Alcohol Use Disorders Identification Test (AUDIT) is a 10-item screening tool developed by the World Health Organization (WHO) to assess alcohol consumption, drinking behaviors, and alcohol-related problems. Scoring of the tool is done by summing scores on all the 10 items and a score of eight or more is considered to indicate hazardous or harmful alcohol use. The AUDIT has been validated across genders and in a wide range of racial/ethnic groups and is well suited for use in primary care settings.

2.7 Data Collection Procedures

After securing relevant ethical research clearance from the National Commission for Science and Technology and Innovation (NACOSTI,) the principal researcher recruited and trained 10 university students to assist in data collection. They were given one-day training on ethical data collection. The sub-chiefs were used to help identify village elders who provided security and introduced the research assistants to community members as they collected data. Informed consent was secured. Then, the research assistants distributed and supervised completion of self-administered questionnaires in February 2021. The principal researcher secured the populated questionnaires under key and lock.

Before fieldwork, the researcher obtained research license from National Commission for Science Technology and Innovation (NACOSTI). The research license from NACOSTI helped to eliminate cases of speculation or suspicion. The research team then proceeded to the participants guided by the sub-chiefs.

2.8 Data Management and Analysis Plan

The data was stored under key and lock. Quantitative data was analyzed using the Statistical Package for Social Sciences (SPSS) version 21 with emphasis on univariate analysis. Additionally, bivariate and multivariate analysis were computed to help identify relationships between variables of the study that may predict risk and protective factors of mental illnesses.

2.9 Ethical Considerations

Before collecting data, the researcher will acquire permission from the University and a research permit from NACOSTI confirming that the researcher has approval to carry out a study in Laikipia County. The participants were informed about the risks and benefits of participating in the study as well as the purpose of the study. This was meant to help them to make an informed decision regarding voluntarily participating in the study. They gave consent voluntarily without any form of coercion or threat.

All data collected was kept confidential and private, with questionnaires having

no identifiers of the respondents as a way of concealing their identity. Participants were informed not to indicate their names on the questionnaire. Codes on the questionnaire were emphasized for anonymity of participants. Where names and contact details of the participants are required, the researcher took precaution to ensure that none of these details find itself in the final report of this study.

Due to the emotional nature of the phenomenon under study, the researcher put stringent measures in place, where a stand-by counsellor was availed during data collection to assist those who experienced some emotional challenges because of participating in research. Also, after participating in research, group debriefing sessions were offered to all participants.

RESULTS

3.1 Participants Socio-demographic Characteristics

Table 3.1 Distribution of Participants Socio-demographic Characteristics

Variables	**Frequency (Percentage)**
Participant's Age	
20-29	131(40.1)
30-39	90(27.5)
40-49	66(20.2)
50-59	40(12.2)
Participant's Gender	
Male	166(50.5)
Female	163(49.5)
Marital status	
Married	194(58.8)
Divorced	16(4.8)
Separated	47(14.2)
Single	69(20.9)
Widow/er	4(1.2)
Religious Service	
Yes	273(84.8)
No	49(15.2)
Level of Education	
Primary	99(30.0)
Secondary	144(43.6)
College	55(16.7)
University	32(9.7)
Employment status	
Full time	66(19.8)
Part-time	90(26.9)
Not in work force	41(12.3)
Self-employed	137(41.0)
Financial constrains	
Yes	254(87.3)
No	37(12.7)
Level of income	
< 20,000 per month	287(87.5)
20,001-40,000	26(7.9)
40,001-60,000	11(3.4)
> 60,000	4(1.2)
Family support	
Yes	151(45.5)
No	181(54.5)
Health status	
Poor	18(5.5)
Fair	100(30.6)
Good	156(47.7)
Excellent	53(16.2)

Table 3.1 shows that a sample of 329 males and females aged between 20 and 59 responded to questionnaires in this study on prevalence and associated factors for selected mental health disorders among adults in Laikipia County. Six (6) participants did not indicate their gender and therefore they are not included in the analysis of socio-demographic characteristics. The majority of the participants were aged 20 to 59 (40.1%) compared to those aged 20 and 29 30-39 (27.4%), 40-49 (20.2%), and those aged 50-59 (%) had the lowest respondents. Of the 329 participants, 166 (50.5%) were males while 163(49.5%) were females. In terms of their marital status, 58% of the participants were married (20.9%) in comparison to single (20.9%) separated (14.2%), divorced (4.8%), and widow/er (1.2%). Majority of the participants indicated that they are religious 273(84.8%). Those who implied that they were not religious are 49(15.2%). There was variation in the level of education attained with the largest proportion being those who have attained secondary education 144 (43.7%), followed by primary school education, college education 99(30.0%), and then university education at 32(9.7%).

3.2 Prevalence and Severity of Alcohol Use

Table 3.2: Frequency of Severity of Alcohol Use

Variables		Frequency	Percent
0-7	Social drinker	234	71.1
8-14	Harmful or Hazardous	39	11.6
15+	Alcohol dependence	58	17.3
Total		335	100

Table 3.2 presents the frequency of alcohol use and its severity using AUDIT. Scores between 0-7 were considered to present with social drinker, scores of 8-14 are diagnosed with harmful or hazardous drinker whereas scores of 15 and more are considered to present with Alcohol dependence disorder. As shown on the Table, the frequency of social drinker was significantly higher (239, 71.1%) compared to harmful or hazardous drinker (39, 11.6%) and alcohol dependence disorder (58, 17.3%). These findings seem to imply that adults in Laikipia County engage in harmful (11.6%) use of alcohol while a larger proportion of 17.3 % have developed alcohol dependence disorder. These results reveal that alcohol dependence among adults is a mental health concern in Laikipia County.

Table 3.3: Prevalence of Alcohol Use

Variables		Frequency	Percent
0-7	Social drinker	234	71.1
8-14+	Harmful or Hazardous & Alcohol dependence	97	28.9
Total		135	100

Table 3.3 gives the prevalence of alcohol use among participants at 28.9%. These results seem to imply that alcohol use among adults in Laikipia County is a public health concern.

3.3. Prevalence and Severity of Depression

Table 3.4: Frequency of Severity of Depression

Variables		Frequency	Percent
0-4	No depression	135	40.3
5-9	Mild depression	112	33.4
10-14	Moderate depression	50	14.9
15-19	Moderately Severe	29	8.7
depression		9	2.7
20-27	Severe depression		
Total		335	100

Table 3.4 shows the frequency of depression and its severity among the participants. PHQ-9 was used to assess the level of depression whereby, scores of 0-4 shows no presence of depressive symptoms, scores of 5-9 were considered to present with mild depression, scores of 10-14; moderate depression, 15-19; moderately severe depression and the scores of 20-27 were diagnosed to present with severe depression. The frequency of participants with no symptoms of depression was higher (135, 49.3) compared to the frequency of mild depression (112, 33.4%) moderate depression (50, 14.9%) moderately severe depression (29, 8.7%) and severe depression (9, 2.7%). The findings suggest that a statistically significant number of adults in Laikipia County are at risk of developing depressive symptoms.

Table 3:5: Prevalence of Depression

Variables		Frequency	Percent
0-4	No depression	135	40.3
5-27	Depressive symptoms	200	59.7
Total		135	100

Table 3.5 presents the general prevalence of depression among the participants.. Mild depression was picked up as the borderline for presentation of depressive symptoms. As indicated on the Table, the proportion of participants who scored 5 and more was at 59.7% implying that clinical depression among adults is of mental health concern in Laikipai County.

Table 3.6: Distribution of Socio-demographic Characteristics and Depression

Variables	Total	Depressive Symptoms	
		0-4	5-27
		No depression	Depressive symptoms
Participant's Age			
20-29	131(40.1)	42(12.8)	89(27.2)
30-39	90(27.5)	35(10.7)	55(16.8)
40-49	66(20.2)	34(10.4)	32(9.8)
50-59	40(12.2)	19(5.8)	21(6.4)
Participant's			
Gender	166(50.5)	75(22.8)	91(27.7)
Male	163(49.5)	58(17.6)	105(31.9)
Female			
Marital status			
Married	194(58.8)	82(24.8)	112(33.9)
Divorced	16(4.8)	4(1.2)	12(3.6)
Separated	47(14.2)	19(5.8)	28(8.5)
Single	69(20.9)	27(8.2)	42(12.7)
Widow/er	4(1.2)	1(0.3)	3(0.9)
Religious Service			
Yes	273(84.8)	118(36.6)	155(48.1)
No	49(15.2)	13(4.0)	36(11.2)
Level of Education			
Primary	99(30.0)	40(12.1)	59(17.9)
Secondary	144(43.6)	58(17.6)	86(26.1)
College	55(16.7)	20(6.1)	35(10.6)
University	32(9.7)	15(4.5)	17(5.2)
Employment status			
Full time	66(19.8)	29(8.7)	37(11.1)
Part-time	90(26.9)	31(9.3)	59(17.7)
Not in work force	41(12.3)	9(2.7)	32(9.6)
Self-employed	137(41.0)	66(19.8)	71(21.3)
Financial			
constrains	254(87.3)	100(34.4)	154(52.9)
Yes	37(12.7)	15(5.2)	22(7.6)
No			
Level of income			
< 20,000 per month	287(87.5)	116(35.4)	171(52.1)
20,001-40,000	26(7.9)	8(2.4)	18(5.5)
40,001-60,000	11(3.4)	5(1.5)	6(1.8)
> 60,000	4(1.2)	3(0.9)	1(0.3)
Family support			
Yes	151(45.5)	69(20.8)	82(24.7)
No	181(54.5)	65(19.6)	116(34.9)
Health status			
Poor	18(5.5)	3(0.9)	15(4.6)
Fair	100(30.6)	45(13.8)	55(16.8)
Good	156(47.7)	65(19.9)	91(27.8)
Excellent	53(16.2)	21(6.4)	32(9.8)

Table 3.6 presents the distribution of socio-demographic characteristics and scores on depression. Chi-square test was conducted to assess difference in the distribution of depressive symptoms and socio-demographic characteristic among the participants. The result of the test indicates that there was no significant difference in the distribution of almost all .the socio-demographic characteristics and depressive symptoms (Ps>0.05). However, Chi-square statistics indicate that there was a significant difference in the distribution of some of the socio-demographic characteristics and depressive symptoms such as participants' age, attending religious service, and employment status (Ps < 0.05).

3.4. Distribution and Prevalence of Suicidal Behaviors

Table 3.7a: Frequency of Suicide Behaviours

Variables	Frequency	Percent
None	255	76.6
Suicide Ideation	32	9.6
Suicide plan without	8	2.4
intent	10	3.0
Suicide plan with intent	7	2.1
Suicide attempt without	21	6.3
intent		
Suicide attempt with		
intent		
Total	333	100

Table 3.7a indicates the frequency of suicide behavior among the participants. Suicide behavior Questionnaire was used to assess the classification of suicide behavior in the study. The frequency of participants who did not exhibit suicide behavior was significantly higher at 76.6% as opposed to participants who presented with suicide ideation at 9.6%, suicide plan without intent at 2.4%, suicide plan with intent at 3%, suicide attempt without intent at 2.1% and suicide attempt with intent at 6.3%.

Table 3.7b: Distribution of Suicide Behaviors

Variables	Frequency	Percent
None	255	76.6
Suicide Ideation	32	9.6
Suicide plan	18	5.4
Suicide attempt	28	8.4
Total	333	100

Table 3.7b presents the prevalence of suicide behaviors. The results showed that suicide ideation was at 9.6%, suicide plan was at 5.4% and suicide attempt was at 8.4%.

Table 3.8 Prevalence of Pathological Suicide Behavior

Variables		Frequency	Percent
< 7	Non-pathological Suicide	317	95.2
> 8	Pathological Suicide	16	4.8
Total		333	100

Table 3.8 presents the prevalence of suicide behavior among the participants. Suicide Behavior Questionnaire was used to assess the participant's suicide behavior. Participants who scored 7 or less are considered to present with non-pathological suicide behavior, whereas, participants who scored 8 and greater was considered to exhibit pathological suicide behavior. As shown on the Table, the prevalence of suicide behavior among the participants was 4.8%.

Table 3.9: Distribution of Socio-demographic Characteristics and Severity of Suicide Behavior

Variables	Total	Suicide Behavior	
		< 7 Non pathological	> 8 Pathological
Participant's Age			
20-29	131(40.1)	124(38.2)	7(2.2)
30-39	90(27.5)	82(25.2)	6(1.8)
40-49	66(20.2)	65(20.0)	1(0.3)
50-59	40(12.2)	39(12.0)	1(0.3)
Participant's Gender			
Male	166(50.5)	155(47.4)	9(2.8)
Female	163(49.5)	157(48.0)	6(1.8)
Marital status			
Married	194(58.8)	188(57.3)	5(1.5)
Divorced	16(4.8)	15(4.6)	0(0.0)
Separated	47(14.2)	44(13.4)	3(0.9)
Single	69(20.9)	61(18.6)	8(2.4)
Widow/er	4(1.2)	4(1.2)	0(0.0)
Religious Service			
Yes	273(84.8)	263(82.2)	8(2.5)
No	49(15.2)	42(13.1)	7(2.2)
Level of Education			
Primary	99(30.0)	93(28.4)	6(1.8)
Secondary	144(43.6)	139(42.4)	4(1.2)
College	55(16.7)	53(16.2)	2(0.6)
University	32(9.7)	29(8.8)	2(0.6)
Employment status			
Full time	66(19.8)	57(17.2)	8(2.4)
Part-time	90(26.9)	86(25.9)	3(0.9)
Not in work force	41(12.3)	37(11.1)	4(1.2)
Self-employed	137(41.0)	136(41.0)	1(0.3)
Financial constrains			
Yes	253(87.2)	242(83.4)	11(3.8)
No	37(12.8)	36(12.4)	1(0.3)
Level of income			
< 20,000 per month	286(87.7)	274(84.0)	12(3.7)
20,001-40,000	26(8.0)	25(7.7)	1(0.3)
40,001-60,000	10(3.1)	9(2.8)	1(0.3)
> 60,000	4(1.2)	3(0.9)	1(0.3)
Family support			
Yes	151(45.8)	145(43.9)	6(1.8)
No	179(54.2)	169(51.2)	10(3.0)
Health status			
Poor	18(5.5)	15(4.6)	3(0.9)
Fair	100(30.6)	91(28.0)	7(2.2)
Good	156(47.7)	151(46.5)	5(1.5)
Excellent	53(16.2)	52(16.0)	1(0.3)

Table 3.9 presents the distribution of suicide behavior and the socio-demographic characteristics among the participants. Chi-square test was used to assess

the difference in the distribution of socio-demographic characteristics and suicide behavior. There was a significant difference in the distribution of participant's marital status, attending religious service, employment status, and self-assessed health status (Ps<0.05) and suicide behavior. Also, other socio-demographic features indicate no significant difference in the distribution of suicide behavior and those factors (Ps>0.05).

3.5: Associated Risk Factors for Selected Mental Disorders

Table 3. 10: Multi-Collinearity Coefficients Statistics

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.993	.419		2.371	.018					
	Participant's age category	.001	.045	.002	.026	.979	-.033	.002	.002	.798	1.254
	Participant's gender	-.324	.091	-.218	-3.561	.000	-.275	-.219	-.207	.898	1.113
	Participant's marital status	-.004	.036	-.008	-.123	.902	-.030	-.008	-.007	.878	1.139
	Participant attending religious service	.380	.122	.188	3.117	.002	.230	.193	.181	.922	1.085
	Participant's level of education	.032	.052	.039	.604	.546	.080	.038	.035	.801	1.248
	Participant's employment status	-.062	.039	-.101	-1.619	.107	-.145	-.102	-.094	.870	1.150
	Participant having financial constrains	-.147	.138	-.066	-1.066	.288	-.013	-.067	-.062	.887	1.128
	Participant's level of income	.116	.088	.085	1.317	.189	.146	.083	.076	.800	1.250
	Participant having a strong family support	-.038	.092	-.025	-.411	.681	-.009	-.026	-.024	.890	1.123
	Participant' health status	-.122	.056	-.131	-2.169	.031	-.159	-.136	-.126	.921	1.086

a. Dependent Variable: Participant's severity of alcohol use

Table 3.10 presents the multicolinearity coefficients test. Multicollinearity is a prerequisite test to regression to determine the level of intercorrelations or inter-associations among the independent variables. This is to rule out the disturbance in the data, which can render the statistical inference unreliable. Consequently, Multicolinearity can be spotted with the help of tolerance and its reciprocal, which is

known as variance inflation factor (VIF). The interpretation of the VIF portrays the interpretation of the coefficient of multiple determination. Therefore, if the value of tolerance is less than 0.2 or 0.1 and simultaneously, the value of VIF is 10 and above, then the multicolinearity is problematic and capable of render the results of regression inept for inference. As indicated on Table 4.8, the value of VIF for all the independent variable models are less than 10 and consequently the value of tolerance greater than 0.1. This seems to suggest that there is no significant disturbance collinearity in the data; that can affect the generality of the statistical inference of the risk factors of alcohol use, suicide behaviors ,and depression using regression.

Table 3.11: PLUM Ordinal Regression to Test the Risk Factors of Alcohol Use

							95% Confidence Interval	
		Estimate	Std. Error	Wald	Df	Sig.	Lower Bound	Upper Bound
Threshold	AUDIT_Social drink	19.738	1.634	145.853	1	.000	16.535	22.941
	AUDIT_Harzardous	20.601	1.643	157.299	1	.000	17.382	23.821
Location	Age: 20-29	.777	.615	1.596	1	.206	-.429	1.983
	Age: 30-39	.930	.592	2.473	1	.116	-.229	2.090
	Age: 40-49	1.290	.615	4.395	1	**.036**	.084	2.497
	Age: 50-59	0[a]	.	.	0	.	.	.
	Gender= Male]	1.231	.363	11.521	1	**.001**	.520	1.942
	Gender= Female]	0[a]	.	.	0	.	.	.
	MS_Married	16.637	.495	1129.640	1	**.000**	15.667	17.607
	MS_Divorced	17.210	.769	501.400	1	**.000**	15.704	18.716
	MS_Separated	16.799	.570	869.726	1	**.000**	15.683	17.916
	MS_ Single	16.438	.000	.	1	.	16.438	16.438
	MS_ Widow/er	0[a]	.	.	0	.	.	.
	Rel_service = YES	-1.123	.387	8.417	1	**.004**	-1.882	-.365
	Rel_service = NO]	0[a]	.	.	0	.	.	.
	Primary	.325	.682	.227	1	.634	-1.011	1.661
	Secondary	.419	.637	.432	1	.511	-.830	1.668
	College	.886	.668	1.758	1	.185	-.424	2.195
	University	0[a]	.	.	0	.	.	.
	Emp_St. Full time	.878	.445	3.894	1	**.048**	.006	1.751
	" Part-time	.293	.418	.491	1	.483	-.526	1.112
	" Not in work force	1.209	.531	5.183	1	**.023**	.168	2.249
	" Self-employed	0[a]	.	.	0	.	.	.
	Financial_con= YES	.593	.545	1.185	1	.276	-.475	1.662
	Financial_con= NO	0[a]	.	.	0	.	.	.
	< 20,000 per month	-.696	1.322	.277	1	.599	-3.288	1.896
	20,001-40,000	-.325	1.337	.059	1	.808	-2.945	2.295
	40,001-60,000	-.268	1.444	.034	1	.853	-3.097	2.562
	> 60,000	0[a]	.	.	0	.	.	.
	Strong_family= YES	.221	.349	.402	1	.526	-.462	.905
	Strong_family= NO	0[a]	.	.	0	.	.	.
	Health_Poor	1.702	.758	5.039	1	**.025**	.216	3.188
	Health_Fair	.704	.535	1.728	1	.189	-.345	1.753
	Health_Good	.447	.519	.742	1	.389	-.571	1.465
	Health_Excellent	0[a]	.	.	0	.	.	.

Table 3.11 presents the PLUM ordinal regression to estimate the risk factors of

alcohol use. The ordinal regression known as Polytomous Universal Model (PLUM) is an extension of the general linear model to ordinal categorical data. As shown on the Table, among the participant's age, participants aged 40-49 were at risk of alcohol use disorder compared to other age categories (β= 1.290; p=0.036). Among gender categorical variables, male participants were at risk of alcohol consumption as opposed female participants (β=1.231; p=0.001). In addition, participants whose marital status were married (β=15.637; p=0.000), Divorced (β=17.210; p=0.000) and Separated (β=16.799; p=0.000) were significantly at risk of alcohol use. Also, the result showed that participants who responded Yes to religious service (β=-1.123; p=0.004), participants whose employment status were full-time (β= .878; p=0.048), those not in work force (β= 1.209; p=0.023), and participants whose health status were poor (β= 1. 702; p=0.025) were at risk of alcohol use.

Table 3.12: PLUM Ordinal Regression to Test the Risk Factors of Depression Symptoms

							95% Confidence Interval	
		Estimate	Std. Error	Wald	Df	Sig.	Lower Bound	Upper Bound
Threshold	Depressive Symptoms	-18.215	1.538	140.329	1	.000	-21.229	-15.201
Location	Age: 20-29	.943	.488	3.733	1	**.053**	-.014	1.899
	Age: 30-39	.776	.465	2.780	1	.095	-.136	1.688
	Age: 40-49	.177	.467	.144	1	.705	-.738	1.092
	Age: 50-59	0[a]	.	.	0	.	.	.
	Gender= Male]	-0[a]	.	.	0	.	.	.
	Gender= Female]	-.770	.307	6.292	1	**.012**	-1.372	-.168
	MS_Married	-17.487	.404	1873.619	1	**.000**	-18.278	-16.695
	MS_Divorced	-17.078	.750	518.148	1	**.000**	-18.548	-15.607
	MS_Separated	-17.801	.526	1143.767	1	**.000**	-18.832	-16.769
	MS_ Single	-17.498	.000	.	1	**.**	-17.498	-17.498
	MS_ Widow/er	0[a]	.	.	0	**.**	.	.
	Rel_service = YES	-1.192	.449	7.039	1	**.008**	-2.073	-.311
	Rel_service = NO]	0[a]	.	.	0	.	.	.
	Primary	.595	.578	1.058	1	.304	-.538	1.728
	Secondary	.649	.545	1.420	1	.233	-.418	1.716
	College	1.277	.628	4.133	1	**.042**	.046	2.508
	University	0[a]	.	.	0	.	.	.
	Emp_St. Full time	.340	.426	.637	1	.425	-.495	1.175
	" Part-time	.079	.361	.047	1	.828	-.629	.786
	" Not in work force	1.330	.595	5.000	1	**.025**	.164	2.496
	" Self-employed	0[a]	.	.	0	.	.	.
	Financial_con= YES	.179	.446	.161	1	.688	-.695	1.053
	Financial_con= NO	0[a]	.	.	0	.	.	.
	< 20,000 per month	-.357	1.350	.070	1	.792	-3.003	2.290
	20,001-40,000	.297	1.390	.046	1	.831	-2.427	3.022
	40,001-60,000	-.982	1.508	.424	1	.515	-3.938	1.974
	> 60,000	0[a]	.	.	0	.	.	.
	Strong_family= YES	-.249	.301	.683	1	.409	-.840	.342
	Strong_family= NO	0[a]	.	.	0	.	.	.
	Health_Poor	.800	.797	1.008	1	.315	-.762	2.363
	Health_Fair	-.076	.436	.030	1	.862	-.931	.780
	Health_Good	-.071	.412	.030	1	.863	-.879	.737
	Health_Excellent	0[a]	.	.	0	.	.	.

Link function: Logit.

a. This parameter is set to zero because it is redundant.

Table 3.12 presents the Polytomous Universal Model (PLUM) which is an extension of the general linear model to ordinal categorical data. The Table shows the

risk factors of depression among the participants. As shown on the Table, participants age 20-29 are more at risk of presenting depressive symptoms compared with other age categories (β=.943; p=0.053). As regards gender variable, female participants are at risk of depression as opposed male counterpart (β= -.770; p=0.012). Similarly, participants whose marital status was married (β= -17.487; p =0.000), divorced (β= -17.078; p = 0.000), and separated (β= -17.801; p = 0.000) were at risk of depression compared to other marital status categories. Also, the result from this study as indicated on the Table showed that participants who responded Yes to religious service (β= -1.192; p = 0.008), participants whose level of education was college (β= 1.277; p= 0.042) and participants who were not in work force (β= 1.330; p = 0.025) were at risk of exhibiting depressive symptoms.

Table 3.13: Binary Logistic Regression to Test the Risk and Protective Factors of Suicide Behaviors

		B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Agerecode			1.900	3	.593			
	Age: 20-29 (1)	20.402	4843.328	.000	1	.997	725297691.864	.000	.
	Age: 30-39 (2)	17.662	4843.328	.000	1	.997	46817686.065	.000	.
	Age: 40-49 (3)	15.078	4843.329	.000	1	.998	3532973.193	.000	.
	Gender: Male (1)	2.179	1.650	1.743	1	.187	8.834	.348	224.364
	Mar_Status			3.046	4	.550			
	Married (1)	11.020	20170.895	.000	1	1.000	61111.305	.000	.
	Divorced (2)	-1.842	22012.459	.000	1	1.000	.159	.000	.
	Separated (3)	-6.607	20841.563	.000	1	1.000	.001	.000	.
	Single (4))	13.688	20170.895	.000	1	.999	880577.943	.000	.
	Rel_service: Yes (1)	-3.860	1.824	4.477	1	.034	.021	.001	.753
	Lev_Edu			1.345	3	.719			
	Primary (1)	2.197	2.662	.681	1	.409	9.002	.049	1661.765
	Secondary (2)	1.682	2.421	.483	1	.487	5.377	.047	618.174
	College (3)	3.395	3.084	1.212	1	.271	29.827	.071	12573.064
	Employ_status			5.472	3	.140			
	Full time (1)	6.366	2.907	4.797	1	.029	582.009	1.953	173469.999
	Part-time (2)	3.933	2.576	2.332	1	.127	51.060	.328	7951.426
	Not in work force (3)	6.865	3.451	3.958	1	.047	958.616	1.107	830208.855
	Fin_con Yes (1)	.153	2.070	.005	1	.941	1.166	.020	67.327
	Income per month			4.319	3	.229			
	< 20,000 (1)	-12.589	6.172	4.161	1	.041	.000	.000	.611
	20,001-40,000 (2)	-13.394	6.542	4.193	1	.041	.000	.000	.564
	40,001-60,000 (3)	-25.384	10298.448	.000	1	.998	.000	.000	.
	Strong_family. Yes (1)	-2.710	2.011	1.816	1	.178	.067	.001	3.425
	Health_status			3.266	3	.352			
	Poor (1)	4.465	2.563	3.035	1	.081	86.880	.572	13186.508
	Fair (2)	1.868	1.675	1.244	1	.265	6.475	.243	172.571
	Good (3)	1.650	1.831	.812	1	.368	5.209	.144	188.668
	Constant	-29.056	20744.222	.000	1	.999	.000		

a. Variable(s) entered on step 1: Agerecode, Gender, Mar_Status, Rel_service, Lev_Edu, Employ_status, Financial_con, Level_income, Strong_family, Health_status.

Table 3.13 presents the adjusted odd ratio test using binary logistic regression to estimate the risk and protecting factors of suicide behavior among the participants. The result of the binary logistic regression revealed that male participants (AOR: 8.83; CI 95%: .348-224.36), participants whose level of education was primary (AOR: 9.00; CI 95%: .049-166.76), Secondary (AOR: 5.38; CI 95%: 047-62.17) and college (AOR: 29.83; CI 95%: 071-126.06) were at risk of suicide, most especially college students at 29.8 times more likely at risk of suicide. In addition, participants who are not in work force (AOR: 96.62; CI 95%: 1.11-83.86), participants who responded Yes to financially constrained (AOR: 1.17; CI 95%: .020-67.33) and participants whose health status was

poor (AOR: 86.88; CI 95%: .57-132.51) were found to be at risk of suicide. In the same way, the results as shown on the Table also indicated that being active in religious service (AOR: .021; CI 95%: .001-.751; p = 0.034), level of income < 20,000ksh – 40,000ksh per month (AOR: 0.00; CI 95%: .00-56; p = 0.041) and having strong family (AOR: .067; CI 95%: .001-3.425) were found to be protective factors of suicide behaviors.

Table 3.14: Relationship between Frequency of Ideation and Likelihood of Suicide Attempt

	Likelihood of suicide attempt			
Frequency	Unlikely	Likely	Chi-square	p-value
Sometimes ≤ 3	19 (5.7%)	2 (0.6%)	521.315	<0.0001
Often ≥ 4	41 (12.3%)	24(7.2%)		

Table 3.14 presents the association between frequency of ideation and likelihood of suicide attempt. The result implies that participants with less frequent suicide ideation were unlikely to attempt suicide (0.6%) as opposed participants with more often frequency were likely to attempt suicide (7.2%). This suggests that the more the frequency of suicide ideation, the likelihood of suicide attempt. Chi-square test implies that there is significant relationship between frequency of ideation and likelihood of suicide attempt (p=0.0001).

Table 3.15: Suicide Threat and Likelihood of Suicide Attempt

	Likelihood of suicide attempt			
Threat	Unlikely	Very likely	Chi-square	p-value
Once	9 (2.7%)	2 (0.6%)	1104.462	<0.0001
> 1	15 (4.5%)	24 (7.2%)		

Table 3.15 shows the association between suicide threat and likelihood of suicide attempt among the participants. The result implies that participants who issues threat of suicide once (2.7%) have lower likelihood of suicide attempt (0.6%) compared to those who are have higher frequency of suicide threat (4.5%) have higher likelihood of suicide attempt (7.2%). This suggests that participants who issue threat of suicide more than once are very likely to attempt suicide. The chi-square test shows that there is a significant relationship between suicide threat and suicide attempt (p = 0.0001).

3.6 Protective Factors of MDD among the Participants

Table 3.16: Linear Regression Coefficients Test

		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations		
Model		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	1.233	.287		4.290	.000	.667	1.798			

Participant's age category	-.052	.031	-.114	-1.688	.093	-.113	.009	-.160	-.106	-.102
Participant's gender	.164	.062	.167	2.632	.099	.041	.287	.145	.164	.158
Participant's marital status	.013	.025	.034	.536	.593	-.035	.062	.102	.034	.032
Participant attending religious service	.252	.084	.188	3.007	**.003**	.087	.416	.166	.186	.181
Participant's level of education	.007	.036	.014	.207	.836	-.063	.078	.014	.013	.012
Participant's employment status	-.028	.026	-.067	-1.047	**.026**	-.080	.024	-.109	-.066	-.063
Participant having financial constrains	-.013	.094	-.009	-.137	.891	-.199	.173	-.018	-.009	-.008
Participant's level of income	-.017	.060	-.019	-.278	**.001**	-.136	.102	-.034	-.018	-.017
Participant having a strong family support	.054	.063	.054	.849	**.036**	-.071	.178	.078	.054	.051
Participant' health status	-.024	.038	-.040	-.633	.528	-.100	.051	-.059	-.040	-.038

a. Dependent Variable: Depressive symptoms

A *hierarchical linear regression* is a special form of a *multiple linear regression* analysis in which more variables are added to the model in separate steps called “blocks.” This is often done to statistically “control” for certain variables, to see whether adding variables significantly reduces the likelihood of a model's ability to a condition. Protective factors are characteristics associated with a lower likelihood of negative outcomes or that reduce a risk factor's impact. From the Table above, out of the models examined, attending religious service (p=0.003), employment status (p=0.026), level of income (p=0.001) and having a strong family support (p=0.036) were found to be protective factors of major depression disorder among the participants.

3.7 Protective Factors of AUD among the Participants

Table 3. 17 Linear Regression Coefficients Test

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta	T	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	.993	.419		2.371	.018	.168	1.818			
	Participant's age category	.001	.045	.002	.026	.979	-.087	.090	-.033	.002	.002
	Participant's gender	-.324	.091	-.218	-3.561	.806	-.502	-.145	-.275	-.219	-.207
	Participant's marital status	-.004	.036	-.008	-.123	.902	-.076	.067	-.030	-.008	-.007
	Participant attending religious service	.380	.122	.188	3.117	**.002**	.140	.621	.230	.193	.181
	Participant's level of education	.032	.052	.039	.604	.546	-.071	.135	.080	.038	.035
	Participant's employment status	-.062	.039	-.101	-1.619	.107	-.139	.014	-.145	-.102	-.094
	Participant having financial constrains	-.147	.138	-.066	-1.066	.288	-.417	.124	-.013	-.067	-.062
	Participant's level of income	.116	.088	.085	1.317	.189	-.057	.290	.146	.083	.076
	Participant having a strong family support	-.038	.092	-.025	-.411	.681	-.220	.144	-.009	-.026	-.024
	Participant' health status	-.122	.056	-.131	-2.169	**.031**	-.232	-.011	-.159	-.136	-.126

a. Dependent Variable: Participant's severity of alcohol use

Table 3.18 implies that participants attending religious service (p=0.002) and health status (p=0.031) were found to be protecting factors of alcohol use.

3.8 Association of MDD, Suicide Behaviors and Alcohol Use

Table 3.18: Kendall's tau_b Nonparametric Correlations

			Depressive symptoms	Participant's severity of alcohol use	Participant's severity of suicide behaviour
Kendall's tau_b	Depressive symptoms	Correlation Coefficient	1.000	.170**	.157**
		Sig. (2-tailed)	.	**.001**	**.004**
		N	335	335	333
	Participant's severity of alcohol use	Correlation Coefficient	.170**	1.000	.237**
		Sig. (2-tailed)	**.001**	.	**.000**
		N	335	335	333
	Participant's severity of suicide behavior	Correlation Coefficient	.157**	.237**	1.000
		Sig. (2-tailed)	**.004**	**.000**	.
		N	333	333	333

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

Kendall's tau-b (τ_b) correlation coefficient (Kendall's tau-b, for short) is a nonparametric measure of the strength and direction of association that exists between two variables measured on at least an ordinal scale. As indicated on the Table, the measure of strength was 2-tailed at the 0.001 level whereby, depression was found to have a very strong positively association with AUD ($\tau b = .170$; $p=0.001$). This suggests that the two variable move in tandem, i.e. in the same direction. When one variable decreases, the other variable also decreases, or when one variable increases the other increases. The finding shows that depression and alcohol use move in the same direction. Similarly, the result from this present study showed a strong positive significant association between severities of depression and suicide behavior ($\tau b = .157$; $p =0.004$). The two-tailed significance implies that either way from both side, suicide behaviour, and depression move in the same direction and are significantly correlated.

DISCUSSION

The results from this present study showed the prevalence of harmful or hazardous drinker at 11.6% and alcohol dependence disorder at 17.3% and that AUD is severe among participants aged 20-29, male and among married participants. These findings concur with a study in Brazil, where the prevalence of AUD among young adult population was found at 18.4% and was higher among men at 29.9% and among participants age 20-29 years (Emilene, Büchele, Moretti Pires, & Boing, 2012). Also, findings on prevalence of AUD from this present study was lower compared to available data on prevalence of AUD among adult population in Nigeria. A study by Lasebikan et al (2018) in Nigeria found a higher prevalence of AUD at 39.5%. An epidemiology survey of alcohol use and alcohol use disorders among young adults in Northern Tanzania reported that the prevalence of AUD was igher among males at 47% as opposed to females and higher prevalence was reported among college students (Francis, et al., 2015).

The findings from the study also indicated that the prevalence of depression was at 59.7%. and it is severe among participants aged 20-29, female, married, participant whose employment status was part-time, those with less than 20,000ksh per month income, and those who were financially constrained. Finding from a meta-analysis of 36 studies in 2019 on depression among young adults showed a lower prevalence of depression among young population at 14.3% compared to the finding from this present study at 59.7% (Barker, Beresford, Bland, & Fraser, 2019). The significance increase in depressive illness among young adults in this present study may be sequel to an evidence of increasing anxiety and depression among young adults as published by the Office for National Statistics (2020). An increasing proportion of depression compared to previous years could be associated with difficulties to get-by financially, decline in young adults' satisfaction with their health, (Office for National Statistics, 2020; Awuni & Mbinta, 2020) and increased feeling of more disconnected from their communities and support systems due to COVID-19 restrictions (OECD: Better Policies for Better Lives, 2021). Also, Mokona, Yohannes, and Ayano (2020) in a cross-sectionay survey among unemployed young adults in Ethiopia argued that unemployment and low income are significantly associated with increased prevalence of depression amidst COVID-19 pandemic as the study showed a prevalence of depression at 56.7%.

Additionally, results from this present study showed that suicide ideation was at 9.6%, suicide plan was at 5.4% and suicide attempt was at 8.4%. The general prevalence

of pathological suicide among the participants was at 4.8%. These findings were in line with several other studies. For instance, in an epidemiological study of 1180 young adults in Germany, the researchers found the prevalence of suicidal ideation, plan, and attempt at 10.7%, 5% and 3.4% respectively (Voss, Ollmann, & Beesdo-Baum, 2019). A similar study in Uganda found the proportion of suicide ideation at 10.7% and suicide attempt at 2.3% (Rukundo, et al., 2020). Findings from another study in Mexico were higher as the study showed a prevalence of suicide ideation at 21%, participants with a low-lethality suicide attempt were 11%, those with self-injuries at 6%, whereas, 4% were found to have attempted suicide with a high-lethality suicide attempt (Hermosillo-de-la-Torre, et al., 2021)

As regards associated risk factors, The results showed that participants aged 40-49, are at risk of alcohol use disorder compared to other age categories (β= 1.290; p=0.036). Among gender categorical variables, male participants were at risk of alcohol consumption as opposed female participants (β=1.231; p=0.001). In addition, participants whose marital status were married (β=15.637; p=0.000), Divorced (β=17.210; p=0.000) and Separated (β=16.799; p=0.000) were significantly at risk of alcohol use. Also, the result showed that participants who responded Yes to religious service (β= -1.123; p=0.004), participants whose employment status were full-time (β= .878; p=0.048), those not in work force (β= 1.209; p= 0.023), and participants whose health status were poor (β= 1. 702; p=0.025) were at risk of alcohol use. These findings from this study were similar to a number of studies on risk factors of alcohol use disorders among adults. Example of such studies is a study by Merline, Jager, and Schulenberg (2018). The study found being male, family dysfunctions, separation from spouses or beloved ones as risk factors of alcohol use disorders among young adults. Further, Huurre et al (2010) in a multivariate logistic regression analysis showed that adolescent males, parental divorce, moderate and high level of depressive symptoms, leisure-time spent daily among friends were the strongest risk or predicting factors of excessive alcohol use in adulthood. In addition, Godwin et al (2017), in a cross-sectional study among adults found relatives with alcoholism, male sex, and higher impulsivity were associated with a higher rate of excessive alcohol consumption.

Similarly, this present study showed that the risk factors of depression among the participants were participants aged 20-29 were more at risk of presenting depressive symptoms compared with other age categories (β=.943; p=0.053). As regards gender variable, female participants are at risk of depression as opposed male counterpart (β= -.770; p=0.012). Similarly, participants whose marital status was married (β= -17.487; p =0.000), divorced (β= -17.078; p = 0.000), and separated (β= -17.801; p = 0.000) were at risk of depression compared to other marital status categories. Also, the result from this study as indicated that participants who responded Yes to religious service (β= -1.192; p = 0.008), participants whose level of education was college (β= 1.277; p= 0.042) and participants who were not in work force (β= 1.330; p = 0.025) were at risk of exhibiting depressive symptoms. These findings were consistent with a number of studies on risk factors of depression among adults. For instance, being female, interpersonal dysfunction, stressful life events and circumstances, dysfunctional cognitions, and parental depression were found to be risk factors of young adults' depression (Hammen, 2018). Another binominal logistic regressions for depression found job dissatisfaction and poor health status significantly put adults at risk of depression (Maharai, Lees, & Lal, 2019).

The result of the binary logistic regression revealed that male participants (AOR: 8.83; CI 95%: .348-224.36), participants whose level of education was primary (AOR:

9.00; CI 95%: .049-166.76), Secondary (AOR: 5.38; CI 95%: 047-62.17) and college (AOR: 29.83; CI 95%: 071-126.06) were at risk of suicide, most especially college students at 29.8 times more likely at risk of suicide. In addition, participants who are not in work force (AOR: 96.62; CI 95%: 1.11-83.86), participants who responded Yes to financially constrained (AOR: 1.17; CI 95%: .020-67.33) and participants whose health status was poor (AOR: 86.88; CI 95%: .57-132.51) were found to be at risk of suicide. In the same way, the results as shown on the Table also indicated that being active in religious service (AOR: .021; CI 95%: .001-.751; p = 0.034), level of income < 20,000ksh – 40,000ksh per month (AOR: 0.00; CI 95%: .00-56; p = 0.041) and having strong family (AOR: .067; CI 95%: .001-3.425) were found to be protective factors of suicide behaviors. Studies across the globe have found similar findings. Examples of such study was a multivariate logistic regression analysis that revealed the odds of suicidal ideation higher among female gender, students who had poor social support, family history of suicide attempt, lifetime alcohol use, less frequently engaging in religious practice were factors found to be significantly associated with suicidality (Abdu, Hajure, & Desalegn, 2020).

Another study found psychological distress as major risk factor for both suicidal ideation and suicidal attempt (Owosu-Ansah, Addae, Peasah, Asante, & Osafo, 2020). Also, Gencoz and Or (2006) found that family cohesion emerged as a significant associate of the suicide probability. The finding underline the importance of family relations as a risk factor of suicide among university students. Another unadjusted regression model showed that being divorced or separated from a partner, Facebook addiction, depression, anxiety, stress, low economic class, religious practice, suicide attempts in the family and among friends were associated risk factors of suicidal ideation (Mamun, Rayhan, Akter, & Griffiths, 2020).

Results from this present study further suggests that the more the frequency of suicide ideation, the likelihood of suicide attempt. There was significant relationship between frequency of ideation and likelihood of suicide attempt (p=0.0001). This seems to suggest that suicide attempt does not just happen. Suicide attempt is a product of brief suicide ideation that increases its frequency over a period of time. This result concurs with a similar study on "From ideation to action: differentiating between those who think about suicide and those who attempt suicide" where it was reported that suicide ideation was a significant risk factor of suicide attempt (Wetherall et al., 2018). Consistently, a significant interaction was reported between suicide ideation and lifetime suicide attempts (Rogers, Ringer, & Joiner, 2018). Similarly, Soreff (2019) found that about 1 in 9 individuals who had serious thoughts of suicide made a suicide attempt. In other words, according to Soreff, more than two thirds of suicidal individuals who had serious suicide thoughts did not attempt suicide and that suicidal thoughts can serve as an indicator of suicidal plans and attempts.

This study also found that participants who issue threat of suicide more than once are very likely to attempt suicide. The chi-square test showed that there was a significant relationship between suicide threat and suicide attempt (p = 0.0001). This result supports the claim of Legg (2019), that talking about suicide or issuing out a suicide threat is a significant warning sign of suicide attempt. Similarly, Gvion and Apter (2012) noted that talking about suicide can be a plea for help and it can be a late sign in the progression towards a suicide attempt. Therefore, if someone threatens suicide and other self-destructive behaviors, it is expected of people around the individuals with suicide threat to provide psychosocial support to reduce the severity of suicide tendencies. Extablishing a supportive relationship with suicidal individuals can

be a successful intervention.

Additionally, attending religious service (p=0.003), employment status (p=0.026), level of income (p=0.001) and having a strong family support (p=0.036) were found to be protective factors of major depression disorder among the participants. Results from this present study were similar to a systematic review of studies on risk and protective factors of depression, where it was found that having a higher sense of coherence was identified as a protective factor for both women and men. However, a higher frequency of meeting with friends and having hobbies was protective for men, but not for women (Maier, Riedel-Heller, Pabst, & Luppa, 2021). Another study also found that participating in events in community meetings or religious events were identified as protective factors against incident depression (Ojagbemi, Abiona, Luo, & Gureje, 2018).

This present study also found that participants attending religious service (p=0.002) and good health status (p=0.031) were protecting factors of alcohol use. These findings were similar to the report of a meta-analysis on risk and protective factors of alcohol use disorders across the lifespan. It was reported that higher levels of parental monitoring, low socioeconomic status, parents' disapproval of substance abuse and other deviant behavior, fewer friends who use alcohol, higher level of religiosity, personal religious commitment, and attendance at religious services were found to be protective factors against depressive disorders (Deeken, Banaschewski, Kluge, & Rapp, 2020).

A correlation coefficient analysis in this present study showed a positive correlation of depression, suicide and alcohol use disorder. This result corresponds with a study by Pedrelli, Shapero, Archibald, and Dale (2016), where a significant relationship between depression and alcohol was reported. Similarly, Esang and Ahmed (2018) argued that substance use independently increases the risk of suicidal behavior. Also, a study found that persons with heavy alsocol use are five times more likely to die by suicide than social drinkers (Darvishi, Farhadi, Haghtalab, & Poorolajal, 2020). Another study of the elderly found that 24.5% of people aged 60-69 and 13% of people aged 70-79 had consumed alcohol before attempting suicide (Esang & Ahmed, 2018).

CONCLUSIONS

This study examined the prevalence of selected mental problems among adults aged 20 years and 59 years in Laikipia County. A number of conclusions are drawn from the study. These include:

Foremost, this study reveals that the prevalence of alcohol use is high (28.9%) among adults in Laikipia County. Among these, participants presenting with alcohol dependence were at 17.3%. Also, findings from this study indicate that clinical depression is startling high (59.7%), with participants presenting with mild depression at 33.4%, moderate depression accounting for 14.9%, and those with moderately severe depression at 8.7% and severe depression at 2.7%. Participants who reported pathological suicide were at 4.8%, those with suicidal ideation were at 9.6%, while 5.4% reported having a suicide plan and 8.4% claimed that they were likely to attempt suicide.

This study suggests that the key risk factors for alcohol use disorder among adults in Laikipia County include being aged between 40 and 49 years, being a male, and working as full-time as well as not being in the workforce. Additionally, marital status particularly being married/divorced/separated, and having poor health were

associated with alcohol use among the participants. The study reveals that health status and attending religious service may protect individuals from alcohol use.

Report from this study demonstrate that being a female, being married, divorced or separated, being unemployed, and of college level education increase an individual's susceptibility to depression. On the other hand, this study provides evidence that employment status, family support, level of income, and attending religious are protective factors for clinical depression.

According to the present study, risk factors for suicidal behaviour are having being of secondary, primary, or college level education, not being in the workforce, financial constraints, and poor health. Attending religious service, employment status, level of income, and having family factors may reduce the risks of suicide behaviour.

Finally, the present study found out that there is a strong positive association between suicide behaviour and alcohol use. Additionally, this study reveals depression is significantly associated with alcohol use disorder. Moreover, there is a significant association between severity of depression and suicide behaviours.

RECOMMENDATIONS

This study provided strong evidence that mental health illnesses are rampant among adults in Laikipa County. This study reports a high prevalence rate of mental disorders including clinical depression (57.8%), pathological suicidal behaviour (4.8%), and alcohol use (28.9%). This implies that mental illness is a public health concern in Laikipia County, and this needs budget prioritization by all stakeholders in the field of mental health including civil society institutions (CSOs), the County government, private sector, and national government among other stakeholders.

It must be noted that although this study did not focus on interrelationship between mental illnesses and poor physical health, the interrelationship is well established in various studies across the globe. Moreover, communities must acknowledge that previous research has shown that treatment modalities for decreasing disability due to mental and behavioural disorders have limitations. Hence, it is comparative for communities to use a sustainable method like prevention for reducing the burden of mental illnesses and related negative outcomes.

The current study has established that mental disorders have multiple determinants. Due to this, prevention needs to be multipronged effort. This study provides extensive insight into the role of risk and protective factors in the developmental pathways to mental disorders and poor mental health. Many of these factors are bendable and hence potential targets for prevention and promotion measures. Similarly, other studies have provided evidence on association between poor mental health, physical illnesses and social problems. Therefore, we recommend the need for integrated public health policies, targeting cluster of related problems, common determinants, and early stages of multiproblem trajectories and populations at risks. In this study, the populations at risk include those adults who are not in the workforce, being male, being married/separated or divorce, and being financially constrained among others.

Evidence-based preventive programmes and policies for implementation are recommended to reduce risk factors, strengthen protective factors, and decrease mental illnesses and interrelated disability and onset of some mental illnesses. Such programmes should focus on universal prevention, that is, those interventions that are targeted at the general public or to a whole population group that has not been identified

on the basis of increased risk. Second, programmes should focus on selective prevention, thus, targeting individuals or subgroups of the population whose risk of developing a mental disorder is significantly higher than average, as evidenced by biological, psychological or social risk factors. Finally, other programmes need focus on indicated prevention. This focuses on high-risk people who are identified as having minimal but detectable signs or symptoms foreshadowing mental disorder or biological markers indicating predisposition for mental disorder but who do not meet diagnostic criteria for disorder at that time.

Apart from preventive programmes that target reduction of symptoms and ultimately of mental disorders, health promotion programmes need be implemented. Promotive programmes aim is to promote positive mental health by increasing psychological well-being, competence and resilience, and by creating supporting living conditions and environments. Previous research has established that mental health promotion when aiming to enhance positive mental health in the community may also have the secondary outcome of decreasing the incidence of mental disorders. It is worthwhile noting that prevention and promotion elements are often present within the same programmes and strategies, involving similar activities and producing different but complementary outcomes. Examples of such programmes involve programming for policies and legislations changes/formulation, reducing stress and enhancing resilience, early screening and treatment, enhancing social support, unemployment reduction, mental health education, and so forth.

We recommend a need for changes in legislation, policy formulation and resource allocation because this can provide Laikipia County and Kenya at large with substantial improvements in mental health of the population. In addition to decreasing the risk of mental disorders and improving mental health, such legislative changes have also been proven to positively impact on the health, social and economic development of societies. Civil Society Organizations such as St. Martin Social Apostolate should take a key role in these activities.

Increasing access to education is another major macro-preventive strategies that we recommend for consideration because it has shown to improve mental health and reduce risks for psychiatric illnesses among adults in various countries. Better education increases female cognitive, emotional and intellectual competencies and job prospects, and might reduce social inequity and risks of certain mental disorders such as depression (World Bank, 2000). Therefore, it is expected that programmes aimed at improving literacy, in particular targeting adults, may have tangible benefits in reducing psychological strain and promoting mental health.

The current study suggests that low income and financial constrains may be a consistent source of stress and worry that can lead to symptoms of depression, mental disorders and suicide. Provision of loans sources may reduce the risk of mental illness by removing a key cause of stress. In Bangladesh, a nongovernmental organization known as BRAC developed programmes for poverty alleviation targeting credit facilities, gender equity, basic health care, nutrition, and education and human rights issues. An evaluation of the BRAC poverty alleviation programmes indicated that psychological well-being is better in women who are BRAC members than women who are not (Chowdhury & Bhuiya, 2001). In this regard, we recommend modelling of the BRAC poverty alleviation programme in Kenya and other developing countries.

Taxation, reduced availability and bans on advertising of alcohol and substances is another important prevention strategy with positive mental health outcomes that we seek to recommend. Effective regulatory interventions for addictive substances that can

be implemented at international, national, regional and local levels include taxation, restrictions on availability and total bans on all forms of direct and indirect advertising (Anderson et al., 2005). By reducing the harm from addictive substances these policy interventions can lead to the prevention of substance use disorders. Price is one of the largest determinants of alcohol. Even though there are very limited data, by about 10% in low-income countries (Anderson et al., 2005), studies in high-income countries that shown that a 10% increase in price can reduce the long-term consumption of alcohol by about 7%.

In addition, increases in alcohol taxes reduce the incidence and prevalence of alcohol-related liver disease, traffic accidents and other intentional and unintentional injuries, such as family violence and the negative mental health impacts due to alcohol consumption. Laws that increase the minimum legal drinking age reduce alcohol sales and problems among young drinkers. Reductions in the hours and days of sale and numbers of alcohol outlets and restrictions on access to alcohol are associated with reductions in both alcohol use and alcohol related problems. Although the Kenya government has policies addressing these areas, the implementation lacks strict enforcement and goodwill of opinion leaders. Civil society organizations (CSOs) should closely monitor the implementation of alcohol related policies and legislations, hold the government accountable for any laxity, and try to influence opinion leaders to support the government agenda. CSOs like St. Martin Social Apostolate need take a lead in increasing awareness about the risks and harmful consequences of alcohol abuse.

Findings in the current study suggested that unemployment is a key determinant of mental wellness. The most well known universal interventions in response to job unemployment tend to be legal policies governing unemployment insurance and welfare assistance or policies associated with improving job security. A number of intervention programmes have been developed and tested for effectiveness in helping unemployed workers return to paid employment, such as the Job Club and the JOBS Programme (Price & Kompier, 2005). These low-complexity and low-cost programmes combine basic instruction on job search skills with enhancing motivation, skills in coping with setbacks and social support among job searchers. The JOBS programme has been tested and replicated in large-scale randomised trials in the USA (Caplan et al., 1989; Price, van Ryn & Vinokur, 1992; Vinokur et al., 2000) and Finland (Vuori et al., 2002). It has been shown to have positive effects on rates of re-employment, the quality and pay of jobs obtained and increases in job search self-efficacy and mastery and to reduce depression and distress. The JOBS Programme has also been successfully disseminated in the People's Republic of China and Ireland. Such programmes should be part of activities in communities' mental welfare programming.

Another important area for focus in mental health prevention and promotive programming is stress reduction through exercises. Cross-sectional studies and controlled trials have suggested that exercise, such as aerobic classes and t'ai chi, provides both physical and psychological benefits in elder populations (e.g. Li et al., 2001). These benefits include greater life satisfaction, positive mood states and mental well-being, reductions in psychological distress and depressive symptoms, and lower blood pressure.

One of the key protective factors of depression, suicidal behaviours as well as alcohol abuse revealed by this study is social support. Enhancing social support programmes need to be considered for implementation because evidence has demonstrated the positive effects of friendship on the well-being of individuals including adults and other age groups. We recommend adaptation of Befriending, a

widely used strategy to increase social support and to reduce loneliness and depression among the elderly.

Early screening and intervention in primary care is important in mental and behavioural disorders reduction. For instance, an early case management programme for at-risk community-dwelling elders, which included in-home geriatric assessment, regular contacts and a range of social services (e.g. home making, personal care, emergency alert response system) led to decreases in depression and increased mastery and life satisfaction (Shapiro & Taylor, 2002). In Kenya, limited early case management programmes for at-risk populations exist, and there is scarcity of data on the impacts of such programmes on mental health outcomes. Therefore, we suggest that CSOs take a role in design and implementation of such programmes and conduct scientific evaluations of those programmes to gauge their suitability and effectiveness in reduction of mental disorders.

Mental health literacy and education on help-seeking at onset of disorder is a priority public health activity. The peak period for onset of mental disorders across the lifespan is 12 to 26 years (Moon, Meyer & Grau, 1999; Patton, 1996). Evidence has shown that early detection and treatment of depression and psychosis improves outcomes (Kupfer, Frank & Perel, 1989; Loebel et al., 1992). With this in mind, population-based, indicated prevention and early intervention strategies may provide valuable opportunities to minimize the considerable burden of these disorders. Johannessen et al. (2001) focusing on Scandinavian early treatment and identification of psychosis study revealed the value of mental health literacy in treatment and prevention of illness progression.

Given the high prevalence of suicidal behaviour and pathological suicide reported in the present study, there is need to upscale and/or establish suicide prevention hotlines and crisis in Laikipia County. Although outcome studies over recent decades have not provided convincing evidence that such hotlines and centres have any impact on suicide rates. Some reports suggest a positive effect. For instance, a quasi-experimental study over a period of 11 years among the elderly in Veneto, Italy was conducted involving a telephone helpline for the elderly in combination with a home visiting service. The findings indicated a 71% drop in suicides among the elderly service users compared with a comparable population group (De Leo, Dello Buono & Dwyer, 2002). These findings align with the principal investigator (Dr. Lucy Njiru) observations at work with suicidal clients in Nairobi, Kenya. Njiru's follow-up with clients who received suicide hotline services reveal that these services can divert and reduce suicide attempt and planned execution.

In addition, systematic direct screening of adolescents, using evidence-based suicide predictors, is considered an effective public health strategy to address adolescent suicide. For example, one school-based programme in the Suicide Prevention and School Crisis Management Programme implemented in a public school district in Florida in the USA, covering children and adolescents at elementary, middle and senior high schools provides support for suicide prevention and support services. The comprehensive programme encompassed the implementation of a suicide prevention school policy, teacher training and consultation, education to parents, stress management and life skills curriculum for students and the establishment of a crisis team in each school. In a five-year longitudinal study, a 63% reduction was found in the annual number of suicides among students and a 64% reduction in suicide attempts (Zenere & Lazarus, 1999). This is a recommendable suicide programme worth pursuing and adapting to meet the needs of various age groups.

Another recommendable way of suicide prevention that has shown the clearest and most dramatic results is related to reducing access to the means to commit suicide (Leenars, 2001). Strategies include detoxification of domestic gas and car exhaust, safety measures on high buildings and bridges, control of availability of sedatives and pain-killers and restricted access to pesticides. WHO (1998) has proposed the reduction of access to means of suicide as an essential strategic component of its "human–ecological" model for suicide prevention.

Reducing stressors and enhancing resilience early in life is an excellent strategy in minimizing mental health disorders across an individual's lifespan. Strong evidence exists that early intervention programmes are a powerful prevention strategy. The most successful programmes addressing risk and protective factors early in life are targeted at child populations at risk, especially from families with low income and education levels (Brown & Sturgeon, 2005). They include home-based interventions during pregnancy and infancy, efforts to reduce smoking during pregnancy, parent management training and preschool programmes.

Another mental illness prevention strategy should focus on coping with parental mental illness programmes. Children of parents with mental illness or substance use disorders represent one of the populations at highest risk for psychiatric problems. For instance, children of depressed parents have a risk of around 50% of developing a depressive disorder before age 20 (Beardslee et al., 1988). There is convincing evidence that the transgenerational transfer of mental disorders, especially depression and anxiety disorders, is the result of interactions between genetic, biological, psychological and social risk factors from as early as pregnancy and infancy (van Doesum, Hosman & Riksen-Walraven, in press). Over the last 15 years researchers and practitioners from the USA, Europe and Australia have developed a range of interventions aimed to prevent transgenerational transfer by addressing risk and protective factors in the children and their families. Issues addressed include the family's knowledge about the illness, psychosocial resilience in children, parent–child and family interactions, stigma and social network support. Some interventions are targeted at early parent–child interaction, others use a whole family approach during childhood and early adolescence or focus on the children at risk themselves.

This study provided evidence that mental health illnesses are common in adult population in Laikipia County. This aligns with WHO (2016) report that mental, neurological, and substances use disorders are highly widespread accounting for a large burden of disease and disability globally. Unfortunately, Laikipia County is located in Kenya, which is categorized among the low and middle-income countries where the gap is wide between resources (health care professionals and finances) and those in need of mental and psychological health care services. This means there is an urgent need for St. Martins CSA and other stakeholders in mental health to: (1) scale up services for mental health, neurological, and substances use disorders: and (2) train and involve non-specialized health care providers (lay people) in delivery of psychological services. Moreover, it is paramount to consider the guidelines provided in the WHO mnGAP version 2.0 in achieving one of the Sustainable Developmental Goals on good health and wellbeing.

Additionally, we suggest that St. Martin CSA should not only use psychological interventions delivered by specialized professionals but also non-specialized health-care providers. Group Interpersonal Therapy (IPT) and Problem Management Plus (PM+) when delivered by non-specialized health-care providers with supervision has proven to be effective in treating depression among adults (WHO, 2018a). There is

evidence on effectiveness of PM+ with adults in Kenya (WHO, 2018b). It must be acknowledged that these low intensity psychological interventions particularly PM+ for adults may improve aspects of mental health and psychological wellbeing in individuals whether or not they have been exposed to adversity. However, the adaptation and applicability of PM+ and Group IPT studies in Kenya especially in Laikipia County remains unknown. We propose that St. Martin CSA conducts a study to examine the applicability of Group IPT for depression and PM+ for depression, anxiety, and stress among adults in Laikipia County.

In sum, the evidence presented in this report shows that it is possible to prevent mental disorders and reduce the risk of mental ill-health. A wide range of evidence-based programmes and policies has been developed that successfully reduce risk factors and strengthen protective factors. To the joy of many advocates in mental health programming, the policies and programmes cover the full range of primary prevention, that is, they address universal populations and selective and indicated populations at risk. Reductions in the onset of some disorders have been found as a result of primary prevention programmes. To target the full range of risk and protective factors for mental disorders, and to generate preventive effects in whole populations, the spectrum of effective interventions needs to be further extended over the coming decades. Finally, a wide range of psychological interventions that may be delivered with non-specialized staff need to be reviewed systematically and adapted to the cultural contexts. This will help to provide a database of available evidence-based psychological interventions for use with lay health providers.

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Appendix A: Participant Socio-Demographic Questionnaire (Researcher, 2020)

Good morning.
Instructions:

This questionnaire is for gathering socio-demographic data and other important information about you. This information will be kept confidential and will only be used for the purposes of this study. Please, indicate honestly which one applies to you.

Date:_____ Code:_____

Time: _____

Place: _____

Your age: _____

Gender: ☐ Male ☐ Female

Please, indicate your marital status.

☐ Married. ☐ ..Divorced.. ☐ ..Separated.. ☐ .Single ☐ Widower

Do you attend religious service of some sort? ☐ Yes ☐ No

What is your level of education?

Primary ☐ Secondary ☐ College ☐ University ☐

Please, what is your employment status?

Full time ☐ Part-time ☐ Not in the work force ☐ Self-employed ☐

Would you consider yourself as having some financial constrains? ☐ Yes ☐ No

Please, indicate your level of income in Kenya shillings

Less than 20, 000 per month ☐

Between 20,001 -40,000 per month ☐

Between 40,001- 60,000 per month ☐

More than 60,000 per month ☐

Would you say that you have a strong family support? ☐ Yes ☐ No

How would you rate your health status? ☐ Poor ☐ Fair ☐ Good ☐ Excellent

Do you use any drugs and substances? ☐ Yes ☐ No

Please, mark all the drugs and substances that you use

Alcohol ☐ Tobacco ☐ Miraa (khat) ☐

Marijuana (Bhang) ☐ Cocaine ☐ Shisha ☐

Heroine ☐ Glue ☐ Hashish ☐ Kuber ☐

Any other, please give name ☐_____

Appendix B: Patient Health Questionaire-9 (Pfizer, 1999)

Instructions: The PHQ-9 is a multipurpose instrument for screening, diagnosing,

monitoring, and measuring the severity of depression

Patient Name _____ Date _____

1. Over the last 2 weeks, how often have you been bothered by any of the following problems? Read each item carefully, and circle your response.

	Not at all	Several days	More than half the days	Nearly every day
	0	1	2	3
a. Little interest or pleasure in doing things				
b. Feeling down, depressed, or hopeless				
c. Trouble falling asleep, staying asleep, or sleeping too much				
d. Feeling tired or having little energy				
e. Poor appetite or overeating				
f. Feeling bad about yourself, feeling that you are a failure, or feeling that you have let yourself or your family down				
g. Trouble concentrating on things such as reading the newspaper or watching television				
h. Moving or speaking so slowly that other people could have noticed. Or being so fidgety or restless that you have been moving around a lot more than usual				
i. Thinking that you would be better off dead or that you want to hurt yourself in some way				
Totals				
10. If you checked off any problem on this questionnaire so far, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	☐ Not difficult at all ☐ Somewhat difficult ☐ Very difficult ☐ Extremely difficult			

Appendix C: The Alcohol Use Disorders Identification Test: Self-Report Version (Babor, de la Fuente, Saunders, & Grant, 1989)

Name:_____Date_____

Because alcohol use can affect your health and can interfere with certain medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential so please be honest.

Instructions:

Place an X in one box that best describes your answer to each question.

Questions	0	1	2	3	4	
1. How often do you have a drink containing alcohol?	Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week	
2. How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2	3 or 4	5 or 6	7 to 9	10 or more	
3. How often do you have six or more drinks on one occasion?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
4. How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
5. How often during the last year have you failed to do what was normally expected of you because of drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
7. How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
8. How often during the last year have you been unable to remem- ber what happened the night before because of your drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
9. Have you or someone else been injured because of your drinking?	No		Yes, but not in the last year		Yes, during the last year	
10.Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	No		Yes, but not in the last year		Yes, during the last year	
					Total	

Appendix D: Suicidal Behaviours Questionnaire-Revised (Osman et al., 1999)

Patient Name_____ Date of Visit_____

Instructions: Please check the number beside the statement or phrase that best applies to you (NB: Mark one only)

Have you ever thought about or attempted to kill yourself?
1. Never ☐
2.It was just a brief passing thought ☐
3a. I have had a plan at least once to kill myself but did not try to do it ☐
3b. I have had a plan at least once to kill myself and really wanted to die
4a. I have attempted to kill myself, but did not want to die ☐
4b. I have attempted to kill myself, and really hoped to die ☐

2. How often have you thought about killing yourself in the past year**?**
Never ☐
Rarely (1 time) ☐
Sometimes (2 times) ☐
Often (3-4 times) ☐
Very Often (5 or more times) ☐

Have you ever told someone that you were going to commit suicide, or that you might do it?
No ☐
2a. Yes, at one time, but did not really want to die ☐
2b. Yes, at one time, and really wanted to die ☐
3a. Yes, more than once, but did not want to do it ☐
3b. Yes, more than once, and really wanted to do it ☐

How likely is it that you will attempt suicide someday?
Never ☐
Likely ☐
No chance at all ☐
Rather likely ☐
Rather unlikely ☐
Very likely ☐
Unlikely ☐

Appendix E: NACOSTI Permit

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RESEARCH LICENSE

This is to Certify that Dr.. Lucy MUTHONI Njiru of Amref International University, has been licensed to conduct research in Laikipia on the topic: Prevalence and associated risk factors for selected mental disorders among adults in Laikipia County for the period ending : 16/March/2021.

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