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CONTENTS

Alcohol Use Disorders and Associated Determinants among Public Sector Employees in Kenya	3
Effect of medication-assisted treatment on psychosocial wellbeing among patients with opioid use disorder. A case of Mathari National Teaching and Referral hospital Nairobi City County	11
Effectiveness of a Music Based Intervention in Enhancing Problem Recognition among Clients with Substance Use Disorders in Residential Treatment Centers in Kenya	23
Prevalence of co-occurring mental disorders among in-patients at the Alcohol & Drug Abuse Rehabilitation Unit, Moi Teaching & Referral Hospital in Eldoret	36
Production, Sale, and Distribution of Unrecorded Liquor in Kakamega and Uasin Gishu Counties in Kenya	45
The Culture of Drug Abuse and Substance Use as a determinant of Health Outcomes among Students in Kenya public Universities	54
Policy Brief on The Status of Alcohol And Drug Abuse Control in Kenya for the Period Between 1st January To 30th June 2020	66
Policy Brief on the Status of Alcohol and Drug Abuse among Employees in the Public Sector Workplace in Kenya	69

Alcohol Use Disorders and Associated Determinants among Public Sector Employees in Kenya

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Abstract

Global data estimates that 237 million men and 46 million women have alcohol use disorders (AUDs) representing 5.1% of adults. Despite the growing burden of AUDs in the general population, there is limited attention on the situation in the workplace. Further, there is limited evidence to inform tailored interventions specific to the public sector workplace. This study therefore aimed to assess the status of AUDs and associated determinants among public sector employees in Kenya. A cross-sectional study was conducted from August 2020 – May 2021 where a total of 9,422 public sector employees were interviewed. Results showed that the lifetime prevalence of alcohol use among public sector employees in Kenya was 44.5%; the annual or 12 – month prevalence was 34.2%; and the 30 – day prevalence was 23.8%. Results also showed that 13.2% of the public sector employees presented with an AUD where 5.7% met the criteria for mild AUD, 3.0% moderate AUD and 4.5% severe AUD. Findings of the multinomial logistic regression analysis also showed that public sector employees who were male; married; separated/widowed/divorced; employed for 5 – 14 years; with temporary employment terms; from a state corporation; and from a medium sized public sector institution (PSI) were significantly associated with exposure to AUDs. Even though evidence showed a high burden of AUDs among employees in the public sector workplace, the problem was not generalized. Findings revealed AUDs risk disperaties across gender, marital status, duration of service, nature of employment, category of workplace and institutional size. The study therefore underscored the need for implementation of target specific interventions in the public sector workplace sensitive to the intricate dynamics of employee sub-group characteristics.

Key words: *Alcohol use disorders, public sector employees and workplace.*

Introduction

Globally, an estimated 3 million deaths are reported every year as a result of harmful alcohol use, representing 5.3 % of all deaths. In 2016, the alcohol-attributable disease burden was highest in low-income and lower middle-income countries when compared to upper-middle-income and high-income countries (WHO, 2018).

Global data has estimated that 237 million men and 46 million women have alcohol use disorders (AUDs) representing 5.1% of adults. The past 12-months prevalence of AUDs among the population aged 15 years and older varied by region, with the prevalence of AUDs being highest in the European Region (8.8%) followed by Regions of the Americas (8.2%), Western Pacific (4.7%), South-East Asia (3.9%), African (3.7%) and lastly East Mediterranean (0.8%) (WHO, 2018). Further, in 2016, severe AUD occurred in 2.6% of the global population aged 15 years and older. Severe AUD was most prevalent in the Region of the Americas (4.1%) and the European Region (3.7%), and least prevalent in the Eastern Mediterranean Region (0.4%) (WHO, 2018). In Kenya, the national prevalence of AUD among the population aged 15 – 65 years was 10.6% (NACADA, 2017). Data also showed that 2.2% of the population met the criteria for mild AUD,

2.0% moderate AUD and 6.2% severe AUD (NACADA, 2017).

Despite evidence of AUD estimates in the general population, workplace specific data is limited. In a study targeting employees from the 50 states of the USA including the District of Columbia, 9.3% of respondents met criteria for mild AUD, 1.9% moderate AUD, and 1.2% severe AUD (Parsely *et al.*, 2022). Evidence shows that alcohol use by employees increases the risk of physical and mental harm thereby leading to undesirable workplace related outcomes such as loss of personal income, injury, and termination of employment (Bockerman, Hyytinen and Maczulskij (2017). Other studies have also linked alcohol use to decreased productivity, absenteeism and antisocial behaviours in the workplace (French et al., 2011; Samokhvalov et al., 2010; Roche et al., 2008).

The negative consequences of employee alcohol use as well as management of AUDs in the workplace exposes employers to major financial consequences. Data from 2,805 employees in the US estimated that the prevalence of workforce impairment due to alcohol use was 15% with significant variation across the different occupation sectors (Frone, 2006). Similarly, a UK survey suggested that working under the influence of alcohol or with a hangover costs the UK economy between £1.2 billion to £1.4 billion annually (Bhattacharya, 2019).

With evidence of the documented consequences of alcohol use and AUDs in the workplace, a "one size fits all" approach to programing may not result to the intended desired outcomes unless the focus is narrowed to targeted interventions. It is therefore imperative to understand the determinants of AUDs among employees to facilitate implementation of selective tailored interventions specific to high risk sub-groups within the workplace. Although there is limited data on determinants of AUDs within the workplace, higher risks of alcohol use have been associated with gender (Larson *et al.*, 2007; WHO, 2018; Jaguga *et al.*, 2022), marital status (Jaguga *et al.*, 2022) and terms of employment (De Cuyper et al., 2008). Although there is an attempt to understand the underlying factors related to alcohol use among employees, there is limitation of data specific to AUDs. Further, there is limited attention of studies specific to substance use among employees in the workplace especially in the middle and low income countries. Besides, majority of the previous studies give emphasis to employees in the private sector with limited focus on mainstream governments resulting to limitation evidence needed to inform selected interventions specific to the diverse sub-sectors within the public sector workplace including Kenya. Therefore, this study aimed to assess the status of AUDs and associated determinants among public sector employees in Kenya. The findings will consequently bolster implementation of evidence informed interventions within the public sector workplace in Kenya.

Methodology

A cross-sectional study was conducted where quantitative data was collected. A structured questionnaire was used to generate data on the prevalence of alcohol use and alcohol use disorders (AUDs). The study targeted public sector employees in Kenya. The sample size was determined using the formula by Kothari (2003). Based on the accuracy of data, the margin of error associated with sampling and other random effects at 95% confidence level was kept at a maximum of +/-0.95% for a sample size of 10,477 employees in the public sector workplace. A total of 9,422 public sector employees were interviewed translating to a response rate of 89.9%.

The survey applied both probability and non-probability sampling methods. From a sampling frame of 500 public sector institutions (PSIs), the survey purposively sampled at least ten (10) percent of the institutions. This translated to 50 PSIs. The sampled PSIs were stratified into three (3) broad categories. The categories included ministries; state corporations and tertiary institutions. Proportionate sampling was used to allocate the number of institutions to be selected in each category resulting to 8 ministries, 27 state corporations and 15 tertiary institutions.

A second stratification was done within each of the three categories (ministries; state corporations;

and tertiary institutions) based on size of the PSIs. In this case the institutions were categorized into large sized PSIs (> 300 employees), medium sized PSIs (101- 300 employees) and small sized PSIs (< 101 employees). From each of these sub-categories, proportionate sampling was also applied to determine the number of institutions in each group (large sized, medium sized and small sized PSIs). The third level of stratification was based on regional distribution of the PSIs across the eight regions of Kenya. Simple random sampling was then used to select the individual PSIs from each of the sub-categories within the ministries; state corporations; and tertiary institutions. Individual respondents were identified using systematic random sampling where every n^{th} employee from the employee staffing register was selected to participate in the study. Employees from all cadres, regions or stations in a given workplace were covered in the sample.

Data collection

Data was collected from August 2020 – May 2021. Both physical and on-line structured questionnaires were used to collect data from the sampled employees. The physical questionnaires complemented the on-line platform especially where the respondents expressed reservations with technology and network challenges. Data collection was coordinated by members of the alcohol and drug abuse (ADA) committees from the sampled institutions. Data on alcohol use disorders (AUDs) was captured using the 5^{th} edition of the Diagnostic and Statistical Manual of Mental Disorder (DSM – 5) (American Psychiatric Association, 2013). The DSM – 5 was used to identify employees with AUDs targeting those who had used alcohol in the last 12 months. AUD was defined as meeting two (2) or more DSM – 5 criteria. In addition, mild AUD was defined as meeting 2 or 3 DSM – 5 criteria, moderate AUD (4 or 5 criteria) and severe AUD (6 or more criteria) (American Psychiatric Association, 2013).

Data analysis

Quantitative data was coded, sorted, entered into the computer and processed using SPSS software version 20. Descriptive statistics were used to describe and summarize the data. Multinomial logistic regression was used to identify determinants of AUDs among public sector employees in Kenya. The results of this analysis also presented the relative risk ratio (RRRs), 95% confidence intervals (CIs) and *p*-value where $p<0.05$ was considered significant. AUD was adopted as the dependent variable.

Results

Background characteristics

Table 1 showed that 57.6% of the public sector employees interviewed were male while 42.4% were female. Majority of employees were aged 46 years and above (34.5%); with a bachelor's degree (34.1%); married (72.2%); in the technical staff position (40.0%); permanently employed (70.9%); from State Corporations (50.1%); and working for large sized institutions (69.3%).

Table 1: Background characteristics (n=9,422)

Characteristic	Category	Percentage (%)
Gender	Male	57.6
	Female	42.4
Age	25 years and below	3.3
	26-35 years	32.6
	36 – 45 years	29.6
	46 years and above	34.5
Education level	Secondary level and below	10.0
	College level	32.6
	Bachelor's degree level	34.1
	Post-graduate level	23.3
Marital status	Single	21.5
	Married	72.2
	Separated/ widowed/ divorced	6.3
Job position	Top Management	3.1
	Middle Management	32.1
	Technical Staff	40.0
	Support Staff	24.8
Nature of employment	Permanent	70.9
	Contract	21.7
	Temporary	7.4
Category of workplace	Ministries	32.2
	State Corporations	50.1
	Tertiary Institutions	17.7
Size of PSI	Large (> 300 employees)	69.3
	Medium (101 - 300 employees)	21.9
	Small (< 101 employees)	8.8

Source: Study data, 2021

Prevalence of alcohol use

Analysis showed that 44.5% of the public sector employees in Kenya had used ever used alcohol in their lifetime (lifetime prevalence). This implied that 55.5% of the public sector employees were lifetime abstainers. Findings also showed that 34.2% of the employees had used alcohol in the last one year (annual or 12-month prevalence) while 23.8% were current alcohol users (current or 30-day prevalence).

Categories of AUDS

Results showed that 13.2% of the public sector employees met the criteria for AUD. Further analysis indicated that 5.7% of the employees met the criteria for mild AUD, 3.0% moderate AUD and 4.5% severe AUD.

Determinants of AUDs

In multinomial logistic regression analysis, public sector employees who were male; married; separated/ widowed/ divorced; employed for 5 – 14 years; with temporary employment terms; from a state corporation; and from a medium sized PSI were significantly associated with exposure to AUDs. On the contrary, job position and education level were not significantly associated with AUDs (Table 2).

Table 2: Determinants of AUDs

Variable	AUD	
	Adjusted RRR (95% CI)	p-value
Gender		
Female	1 (Reference)	
Male	4.141 (3.540, 4.844)	<0.0001
Education		
Secondary level	1 (Reference)	
Bachelor's degree level	1.233 (0.964, 1.575)	0.095
College level	1.060 (0.841, 1.335)	0.622
Post-graduate level and above	1.267 (0.971, 1.652)	0.081
Primary level	1.345 (0.673, 2.690)	0.402
Marital status		
Single (never married)	1 (Reference)	
Married	0.717 (0.602, 0.854)	<0.000
Separated/ divorced/ widowed	1.423 (1.069, 1.895)	0.016
Job position		
Top Management	1 (Reference)	
Middle management	1.067 (0.719, 1.582)	0.748
Support staff	1.138 (0.751, 1.725)	0.541
Technical Staff	1.024 (0.688, 1.524)	0.909
Duration of service		
5 years and below	1 (Reference)	
10-14 years	1.344 (1.102, 1.638)	0.003
15-19 years	0.876 (0.652, 1.176)	0.377
20 years and above	0.811 (0.642, 1.025)	0.079
5-9 years	1.299 (1.090, 1.548)	0.003
Nature of employment		

Variable	AUD	
	Adjusted RRR (95% CI)	p-value
Permanent	1 (Reference)	
Temporary	2.884 (2.262, 3.676)	<.0001
Contract	0.837 (0.692, 1.011)	0.064
Category of workplace		
Tertiary Institution	1 (Reference)	
Ministry	1.230 (0.965, 1.567)	0.095
State Corporation	1.229 (1.005, 1.502)	0.044
Size of PSI		
Small (< 100 employees)	1 (Reference)	
Large (> 300 employees)	0.896 (0.702, 1.144)	0.379
Medium (100 – 300 employees)	0.714 (0.550, 0.927)	0.011

Source: Study data, 2021

Discussion

According to results of this study, the lifetime prevalence of alcohol use among public sector employees in Kenya was 44.5%; the annual or 12 – month prevalence was 34.2%; and the current or 30 – day prevalence was 23.8%. In another general population survey conducted in Kenya, the lifetime prevalence of alcohol use was 30.2%; annual prevalence was 15.1%; and current or 30 – day prevalence was 12.2% (NACADA, 2017). The comparison revealed that the prevalence of alcohol use was higher in the public sector workplace compared to the general population. Similar findings in an Italian study have shown that workers presented with higher alcohol prevalence compared to non-workers (18.0% vs 14.2%) (Venturelli *et al.*, 2017).

In a previous study targeting public maintenance workers in a Brazilian university, findings showed that 78.0% of the workers had used alcohol in the last 12 months (Oliveira and Souza, 2018). This magnitude was 2-fold higher compared to the public sector employees in Kenya. Available evidence also shows that alcohol consumption patterns vary by occupation (Mandell *et al.*, 2006; Australian Bureau of Statistics, 2008; Kim *et al.*, 2008).

Results also indicated that 13.2% of the public sector employees met the criteria for AUDs. Further analysis showed that 5.7% of the employees had met the criteria for mild AUD, 3.0% moderate AUD and 4.5% severe AUD. Comparatively, a national study in the USA reported a 9.3% prevalence of AUD from a sample of working adults with 6.2% meeting the criteria for mild AUD, 1.9% moderate AUD and 1.2% severe AUD (Parsley *et al.*, 2022). The contrast showed that the prevalence of AUD was 2-fold higher among the Kenya public sector employees while severe AUD was 3-fold higher. However, it was important to note that the target population for the current study was the public sector employees. This finding therefore calls for an urgent need for the government to invest on treatment and rehabilitation programs in order to reverse the negative consequences associated with severe AUD among the employed population. Another study had also reported that an estimated 8.8 percent of full-time workers reported past month heavy alcohol use (Larson *et al.*, 2007). This was evidence that alcohol use in the workplace was an emerging challenge that required emphasis of mainstreaming evidence based prevention interventions and programs in the workplace in order to reverse this trend.

For evidence based programing in the workplace, it becomes critical to understand the underlying factors pre-disposing employees to AUDs. From the findings, gender was one the key determinants of AUDs among the public sector employees in Kenya where males were at a higher exposure risk compared to females. Similar findings have also been reported in other studies where males showed

a higher exposure risk to AUDs, sometimes more that 3-fold that of female employees (Larson *et al.*, 2007; WHO, 2018). This finding was also comparable to a study in Kenya targeting the healthcare workforce where male employees were more likely to report harmful alcohol use (Jaguga *et al.*, 2022). This observation therefore underscores the need for tailored gender sensitive workplace interventions.

Marital status was another factor associated with AUDs within the public sector workplace. The study showed that employees who were married; or separated/ widowed/ divorced had a higher risk of exposure to AUDs. Although marital status was identified as a risk factor, another Kenyan study reported that unmarried employees had a higher likelihood of harmful alcohol use (Jaguga *et al.*, 2022). In the context of the current study, it was expected that employees who were married had more parental responsibilities compared to the employees who were single. However, the study showed that parental responsibilities were not protective against exposure to AUDs among employees who were married. Further, it could be explained that employees who were separated/ widowed/ divorced were going through psychological traumatic events that predisposed them to the risk of AUDs especially where alcohol was being used as a coping mechanism deal with these stressful situations.

Duration of service was another risk factor associated with AUDs among public sector employees with those who had worked between 5 – 14 years reporting a higher risk of exposure to AUDs. In another Kenyan study, employees with 11 – 20 years of experience showed a higher likelihood of reporting harmful alcohol use (Jaguga *et al.*, 2022). This finding lays emphasis on the need to implement deliberate prevention interventions targeting newly recruited employees as well as addressing the challenges of workplace culture promoting alcohol use among employees.

Likewise, the study also showed that employees who had been recruited on temporary employment terms had a higher risk of exposure to AUDs. In a comparable study investigating the association between contract type and alcohol addiction, findings showed that temporary employees were 5.6 times more likely to be alcohol dependent compared to the permanent workers (De Cuyper *et al.*, 2008). This finding therefore concluded that temporary employment terms was a workplace stressor leading to higher risk of alcohol use among this category of employees.

Lastly, analysis of data highlighted that employees from medium sized PSIs as well as those from state corporations had a higher likelihood of exposure to AUDs. In terms of the workforce size, most of the medium sized PSIs were mostly state corporations which had higher remuneration rates for employees compared to the ministries and tertiary institutions. Therefore, there was a likelihood of higher disposable income among employees from medium PSIs as well as the state corporations thereby predisposing them to higher risks of alcohol use and eventual consequences of AUDs. This observation was supported by findings of another study that showed a positive correlation between disposable income and higher alcohol use patterns (Murakami and Hashimoto, 2019).

Conclusion

The study established a worrying trend of AUDs among public sector employees in Kenya. In particular, the study highlighted a growing problem of severe AUDs which presents the potential challenges of low productivity, increasing healthcare costs and high attrition rates of affected public sector employees. Even though evidence showed a high burden of AUDs among employees in the public sector, the problem was not generalized. Findings revealed AUDs risk disperaties across gender, marital status, duration of service, nature of employment, category of workplace and institutional size. The study therefore underscored the need for implementation of target specific interventions in the public sector workplace sensitive to the intricate dynamics of employee sub-group characteristics.

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Effect of medication-assisted treatment on psychosocial wellbeing among patients with opioid use disorder. A case of Mathari National Teaching and Referral hospital Nairobi City County

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Abstract

Opioid use is an epidemic globally. Although medication-assisted treatment has been effective in the treatment of opioid use disorder and the improvement of psychosocial well-being, the epidemic continues with the number of those using opioids increasing, causing a heavy burden of disease and a strain on the healthcare system in many countries. The purpose of the study was to establish the effect of medication-assisted treatment on psychosocial well-being among patients with opioid use disorder in Mathari National Teaching and Referral hospital. It was a descriptive cross-sectional study targeting a population of 1211 patients. The sample size comprised 255 patients obtained using the systematic random sampling technique. The study used Carol Riff's harm reduction models. Data collection was through questionnaires that were completed by the respondents. The interview schedule was used for the key informants (doctors, nurses, psychologists, and social workers). The instrument reliability and validity were assessed. Data was analysed using a statistical package for social science (SPSS) Version 24.0. The presentation of the results was through tables, pie charts, and graphs. The study findings revealed that most of the respondents were on medication-assisted treatment at 96.3%. There was a reduction in withdrawal symptoms, overdoses, and the number of those injecting drugs, hence a reduction in HIV, hepatitis, and T.B infections. There was resumption to school, employment, and business. However, there was a 40% relapse. The study concluded that there was a statistically significant relationship between MAT and psychosocial well-being among patients with opioid use disorder(OUD) as demonstrated by significant Pearson Correlation ($r=0.247$, $p<0.05$). Addressing the issue of relapse is important for strengthening the MAT program. Appropriate and programmatic interventions by the policymakers and stakeholders would improve the patients' psychosocial well-being. The study would be useful for future reference by other researchers. It is important to carry out related studies in other MAT clinics in Kenya for comparative purposes. A longitudinal study on the variables under investigation in this current study for five years would be interesting. It is pertinent to decentralize MAT services.

Keywords: *Psychosocial wellbeing, medication-assisted treatment, methadone maintenance treatment, mental health, opioid craving*

Introduction

Psychosocial well-being refers to inter and intra individual levels of positive functioning that include one relatedness with others and a self-referent attitude that provides one's sense of mastery and personal growth in terms of improved mental health among the patients on the medication-assisted treatment. Opioids continue to account for the largest burden of disease attributed to drug use (UNODC World drug report, 2021). An estimated 275 million people worldwide used drugs in 2020, with over 36 million people suffering from opioid use disorders. Globally, over 11 million people are estimated to inject drugs, and half of these people suffer from hepatitis C (UNODC World drug report, 2021). According to the global status of Harm Reduction (HR), a lancet global health systemic review shows that 15.6 million people who inject drugs had 17.8% HIV and 52.3% Hepatitis C causing a heavy burden of disease. (Larney, 2017).

Some of the adverse effects of Opioid use (OU) are poor health status, increased use of opioids leading to increased infections such as HIV, and hepatitis C, high mortality due to opioid overdose, and poor community reintegration. Illicit drug use is estimated to be 5.4% by the World health organization (UNODC, World drug report, 2019). If this problem is left unaddressed, the results will be a heavy burden on any country's health systems. Therefore, UN General Assembly Special Session (UNGASS) endorsed comprehensive management of health risks and consequences such as harm reduction interventions to minimize the adverse public health and social consequences of drug abuse (WHO, 2016).

The global state of harm reduction in the USA shows an increase of 21.4% between 2015 and 2016 in drug-related fatal overdoses. (UNODC, World Drug Report, 2018). The primary cause of death is Opioid Overdose (O-OD) among people who inject drugs (UNDP, 2012) The USA shows a high retention rate and improved rehabilitation (Ball & Ross, 2012). Canada reports 92% of its opioid-related deaths as accidental/unintentional (Canada, 2018). According to global status on HR, Europe, France, the United Kingdom, and China report non-adherence to the Methadone Maintenance Treatment (MMT) (Nguyen, 2017). Therefore, provisions of naloxone for the prevention of O-OD are important (UNDP, 2012).

Studies have also shown an increase in O-OD deaths in Western Europe. An estimated 84% of overdose-related deaths, involved opioids which occurred in Turkey, Germany, and the U. K (EMCDDA, 2018).In addition, non-adherence to methadone risks relapse to OU (Hoang (Hoang, 2015). A systemic review by Dugosh found that "psychosocial treatments combined with pharmacological detoxification treatments were effective in increasing rates of levels of treatment completion, reducing OU, and facilitating longer-term abstinence (Dugosh, 2016).

An estimation of 40,800 deaths in Africa is associated with a heroin overdose. Injecting drug use remains a significant factor in the transmission of HIV, hepatitis, and other blood-borne diseases. Sixteen countries report injecting drug use in sub-Saharan Africa, including Kenya, Nigeria, Tanzania, South Africa, and Mauritius. In Sub-Saharan Africa, studies show "evidence of the effects of implementing methadone in low-income settings is accumulating" (Bruce, 2014). In the East Africa region, there is no published evidence of projected HIV prevention and the impact of MMT (Bruce et al.).

A retrospective study conducted among 629 participants at the Methadone maintenance treatment clinic at Muhumbili National Hospital in Tanzania showed a 57% retention in 12 months of study. The results were comparable to estimates from programs in the North. America, Europe, and Asia. (Lambdin, 2014). A cross-sectional study in Mwananyamala Hospital in Dar es Salaam showed that 125 out of the 126 Methadone maintenance treatment participants used opioids. In addition,50% of the participants had been on Methadone maintenance treatment within 0-12 months .23.8% of the participants were on MMT within 13-15 months at 11.11%, within 26-38 months, and 15.08% at over 39 months (Ripanda, 2019). Despite being on Methadone maintenance treatment, the patients were still using opioids.

In Kenya, the 2009/10-2013/14 Kenyan strategic plan (KNSAP111) highlighted the need to prevent new infections among injecting drug users. HR therapy that was not allowed was incorporated to reduce HIV. Kenya is the third in Sub-Saharan Africa to introduce the Methadone maintenance treatment. Studies were done to highlight the severe nature of substance abuse.

A survey was done in Kenya by NACADA on "drug and substance abuse among secondary school students" showed a prevalence rate of 0.4% for heroin ad 0.4% for cocaine, and prescription drugs at 6.8% among other substances (NACADA, 2016). Mathari National Teaching and Referral Hospital (MNTRH) was among the first public hospitals to offer Harm reduction medically assisted treatment. Enrolment of patients in the Methadone maintenance treatment. (MAT) clinic showed 44.1% in 2015, 31.7 % in 2018, and 27 % in 2019. Notably, there was no enrolment in 2020 due to covid -19. (Table 1.1). Sponsorship of the MAT Clinic is

by the United States President's Emergency Plan for AIDS Relief (PEPFAR) through the Centre for disease control (CDC) and the United States Agency for International Development (USAID), supported by the University of Maryland and UNODC. There are eight operating clinics in Kenya, two in Nairobi city county, MNTRH and Ngara health center, two in Mombasa county, Kisauni and Miritini, and one in Kisumu County(Jaramogi), one in Kilifi county, one in Kwale county and one in Kiambu county(Karuri). MNTRH, MAT clinic receives patients from various civil society organizations(CSOs) such as Support for Addictions prevention and treatment in Africa(SAPTA), Nairobi Outreach services trust(NOSET)Médecins du Monde(MdM), and Liverpool Voluntary Counselling and Testing Centres(LVCT). The purpose of the study was to establish the effect of Medication-assisted treatment on psychosocial well-being among patients with OUD at MNTRH. The objective of the study was to determine the effect of Methadone maintenance treatment (a medically assisted treatment intervention) on the improvement of OUD patients' mental health.

Methodology

The study used both a descriptive survey and a cross-section study design. A descriptive survey allows the respondent's give opinions on MAT and psychosocial well-being among the patients who have OUD. Further, cross-sectional studies examine, at a specific point in time, a broad perspective of a cross-section of the population.

Cochran's formula for calculating sample size was used (Cochran, 1977). Using Cochran's formula with an estimate of variance at 0.7% to estimate the population with absolute precision=0.7% was used because the prevalence of heroin addicts is 0.7 % (NACADA, 2017).

Cochran formula: $n=\frac{z^2 \times p(1-p)}{d^2}$

Where: n is the estimated sample size

D is the level of precision

P is the proportion of the condition of interest

Z is the confidence level of 95%

Using the confidence interval of 95%. Expected prevalence of 0.7 % (NACADA, 2017)

And a level of significance of 5% (0.05)

$$n=\frac{1.96^2 \times 0.7(1-0.7)}{0.05^2}$$

$n=322.6944$

$n=323$

Since the sample size was less than 10,000, the sample size was adjusted using the following formula

$$nf=\frac{n}{(1+n)/N}$$

Where

nf = the desired sample size (when the proportion is less than 10,000)

n= the desired sample size when the population is more than 10,000

N= the estimate of the population size

The population size of the patients with OUD attending the medically assisted therapy is 1211

Hence

$$nf=\frac{323}{1+(323/1211)}$$

$=254.9889178$

$nf=255$

The study sample size was thus two hundred and fifty-five patients 226 males and 29 females with OUD enrolled in the medication-assisted treatment clinic, MNTRH. A systematic random sampling technique was used. Every 5th respondent was selected from the patient register until the desired sample was achieved. The study was carried out in Mathari National Teaching and Referral Hospital, located in Nairobi County, Muthaiga area along the Thika superhighway. This was purposely because it is the largest government psychiatry referral hospital,1st public hospital to pilot the medication-assisted treatment, and has highly specialized professionals in mental health. The hospital offers experiential opportunities for training and research for all disciplines in the medical field including doctors, pharmacists, nurses, psychologists, laboratory officers, and public health officers among many other disciplines.

Data collection procedure

Data collection was done by use of a researcher-developed self-administered structured questionnaire and a key informant interview guide from the health providers. It was administered to all the selected patients and key informants namely the doctors, nurses, pharmacists, psychologists, and social workers. The instrument sought to gather information on the set objectives on the effect of medication-assisted treatment on psychosocial well-being among patients with OUD. Instrument reliability was pretested to show how consistently the instrument measured the target attribute. This was done at the MNTRH general wards. The pilot study used a sample size of 10% of the projected sample as suggested by (Connelly, 2008). With a sample size of 255, the pilot sample size was 10/100x 255= 25.5, therefore the pilot sample size was 26 participants. The 26 participants were given the questionnaire for pretesting. This was done to check whether the instructions were clear and adequate and whether the participants understood what they were required to do. This included checking if the wording and the sequence were correct and if additional questions were needed, to make changes, if need be, to save time, effort, and money before the actual study is carried out.

The reliability coefficient was calculated using Cronbach's coefficient alpha of 0.7. The tool obtained a reliability coefficient of 0.8 was obtained during the pre-test and therefore was considered good. The content and internal validity were matched with the study objectives, construct validity was matched with the study objectives. Supervisors and other experts in the area of specialization ascertained the variables and the criterion validity of the instrument. An introductory letter was given from Africa Nazarene. A research permit was obtained from the National Commission of Science Technology and innovation. Mathari National Teaching and Referral Hospital, research and training committee also approved. Two research assistants were selected based on their professional qualifications, trained, and orientated; they signed a confidentiality agreement to enhance the protection of participants' identities and information. All the participants that met the inclusion criteria and were willing to participate signed an informed consent form. A list of all the patients attending the Medication assisted treatment clinic was provided from the records department, this enabled the researcher to select the participants using systemic random sampling.255 participants who met the inclusion criteria were selected.

Primary and secondary data were collected by the use of questionnaires that were pretested with a pilot group of patients with OUD in the general wards of Mathari National Teaching and Referral Hospital This pretesting was done to provide a check on the feasibility of the data collection tool for coding and also for any flaws and ambiguity that contained written down items on the social demographic of the participants, They contained closed (structured), open-ended (unstructured) and scaled questions. The study used a questionnaire since it was descriptive.The researcher also prepared a structured interview schedule based on the research objectives for the key informants. These were doctors, nurses, psychologists, social workers, and record officers who signed informed consent. This waswas a face-to-face interview that lasted 20-30 minutes. This technique was used because of its adaptability, and flexibility. The researcher to ensure completeness, consistency,

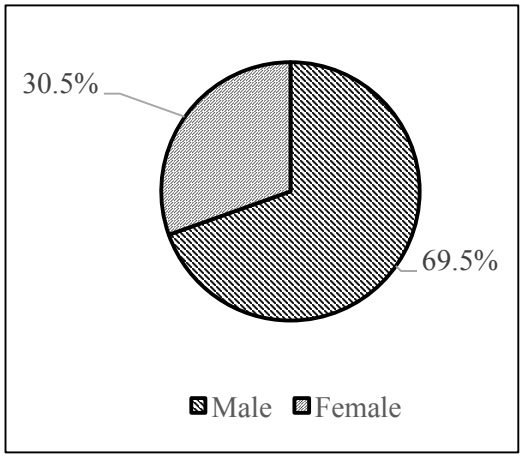
uniformity, and accuracy of information checked all the questionnaires filled out during the study.

Data Processing and Analysis

The data was first cleaned to identify and correct inaccurate, incomplete, and inconsistent information from the questionnaires. The data was coded before capturing it into the computerized software. The data was analysed using the statistical package for social science (SPSS) version 24.0. The descriptive data was presented using percentages, figures, pie charts, and tables. Inferential statistics were presented through the Pearson correlation.

Results

The response rate for the questionnaire was 95.3%, and the interview response rate was 100 percent. The overall response rate was 95.5% .This percentage was considered sufficient for analysis. The findings show that more than two-thirds were males (69.5%) while females were (30.5%). This is indicative of the fact that most of the patients undergoing treatment for OUD were males. These findings are shown in Figure 4.1.

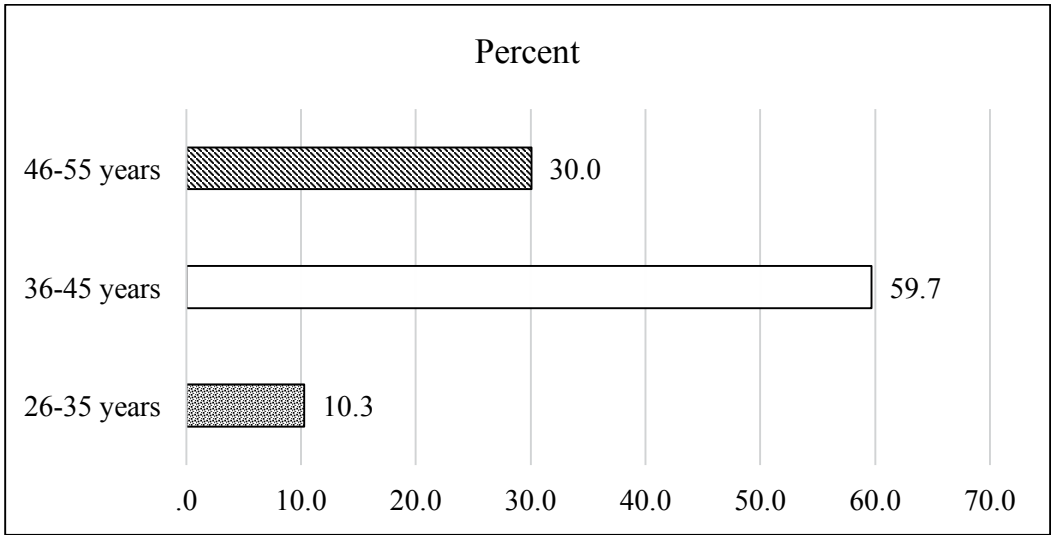


n=243

Figure 4. 1: Gender of Respondents

Source: Field Data, 2021.

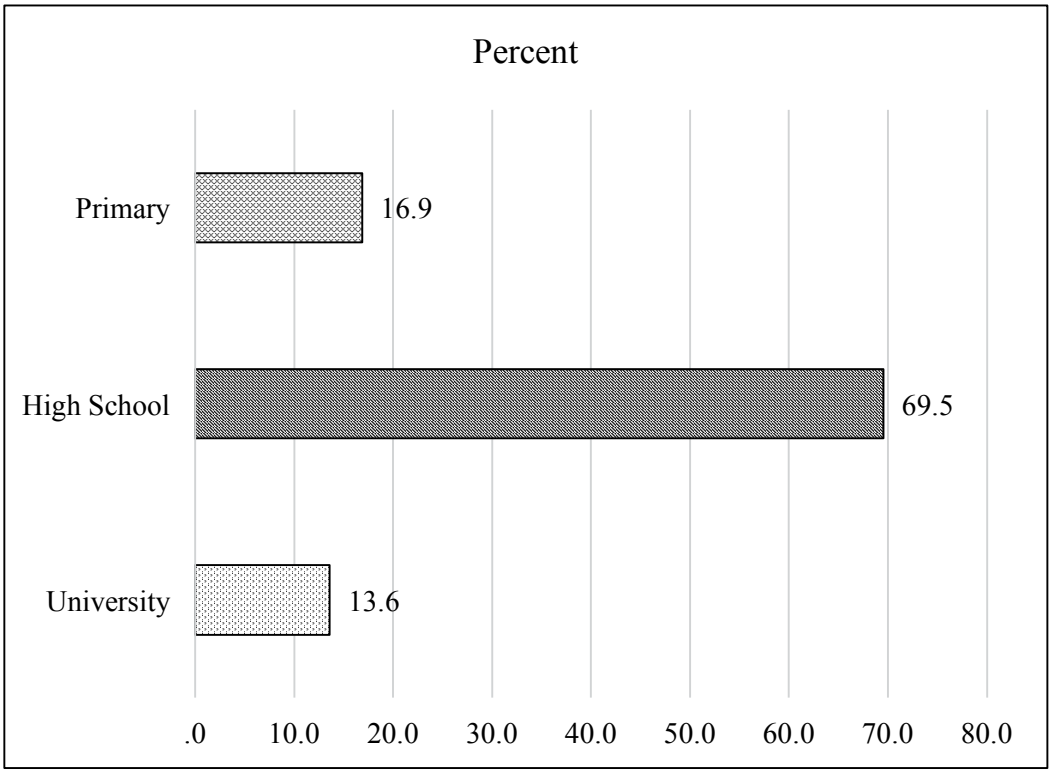
The findings showed that most of the respondents (59.7%) were aged between 36 and 45 years. These were followed by less than a third (30%) who were aged between 46 and 55 years. The least, about a fifth, were aged between 26 and 35 years at 10.3%. This shows that most of those suffering from OUD were more than 35 years old; an indication that opioids use was more prevalent among older generations. These findings are presented in Figure 4.2



n=243

Figure 4. 2: Age of Respondents
Source: Field Data, 2021.

The patients were also asked to point out their highest levels of education. The responses show that most of them had a high school education at 69.5%. The least had primary and university level education at 16.9% and 13.6% respectively. These findings show that high school graduates without further higher education were more likely to have OUDs.The results are presented in figure 4.3

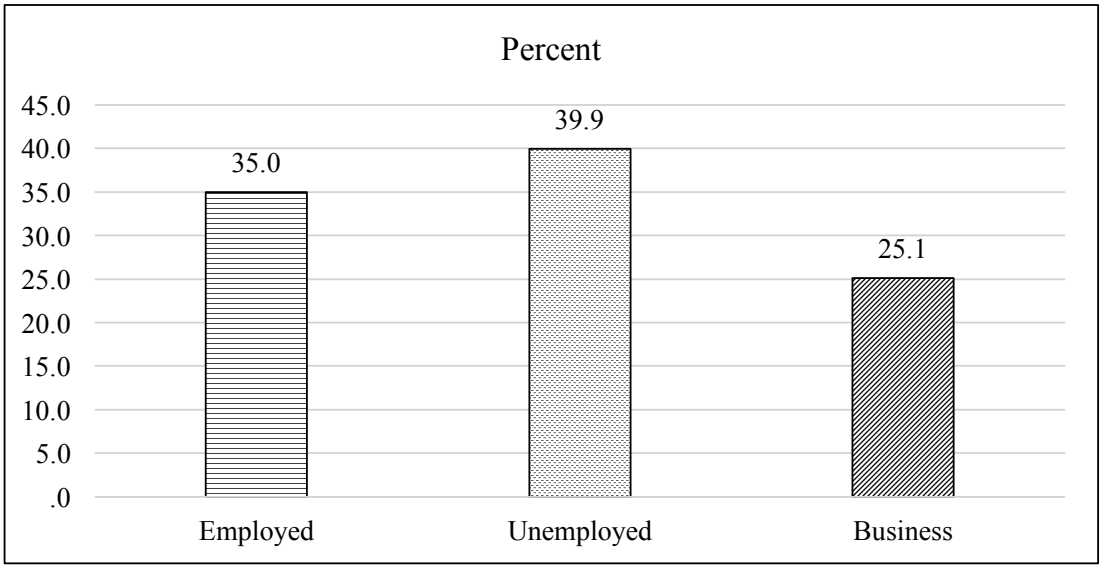


n=243

Figure 4. 3: Highest Level of Education

Source: Field Data, 2021.

When asked to indicate their employment statuses, most of the respondents (39.9%) stated that they were unemployed. While those employed accounted for another 35%, the rest, slightly more than a quarter (25.1%) were in business. This shows that opioid use was more common among unemployed persons. The findings are presented in Figure 4.4

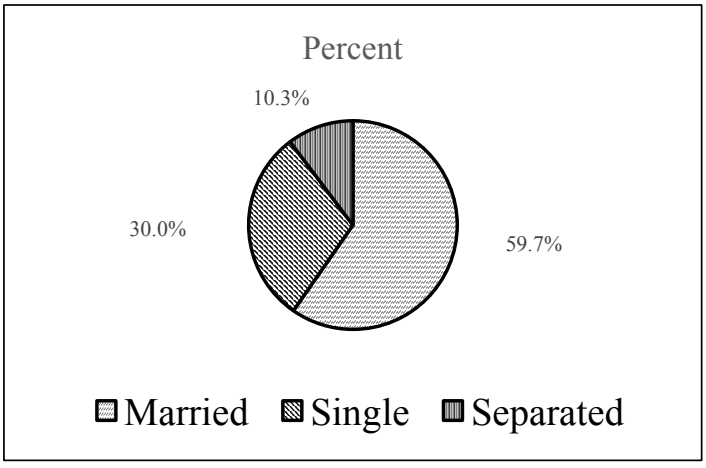


n=243

Figure 4. 4: Employment Status

Source: Field Data, 2021.

The respondents were asked to indicate their marital status. The findings show that the majority were married (59.7%). These were followed by those who were single at 30.3%. The least were those who were separated at 10.3%. This shows that the married were the most affected by OUD. The findings are presented in figure 4.5



n=243

Figure 4. 5: Marital Status

Source: Field Data, 2021.

The findings showed that most of the respondents were under Methadone Maintenance Treatment (MMT) (96.3%) as shown in table 4.1

Table 4. 1: Enrolment and Methadone enrolment and retention among the Patients with OUD from December 2014 to March 2021 at MNTRH

	Enrolment			Methadone retention	
Year	Number of patients	Male	Female	Male	Female
2014	22	18	4	18	24
2015	554	466	88	388	69
2016	597	500	97	382	52
2017	597	500	97	362	52
2018	930	809	121	543	77
2019	1064	142	126	623	74
2020	1211	1061	150	595	76
2021	1224	1063	161	597	68

Source: Field Data, 2021.

These findings from MNTRH show that most of the patients under methadone enrolment and retention were males since 2015. The number had been on the increase since 2014 with a significant drop for males in 2020 which could be explained by challenges related to COVID-19 pandemic. The respondents were asked to point out what they would say about medication-assisted treatment on psychosocial well-being.

One of the respondents said: "We have greatly improved. There have been a few withdrawals and a reduction in overdoses. Those who were injecting heroin had reduced, injection scars had reduced, and some of us have gone back to school, employment, and business" [Respondent A5, April 23, 2021, MNTRH]. In the same accord, another respondent said: "There had been remarkable improvement, female fertility had improved as shown by improvement in their menses also evidenced by the number of new pregnancies. I am a proud father of a baby boy courtesy of MAT. HIV and TB among us have reduced". [Respondent A1, April 21, 2021, MNTRH].

There had been reductions in new HIV and other blood-borne infections transmission through sharing needles. This corroborates with secondary data from MNTRH that show low levels of infection for patients on methadone as shown below:

Table 4. 3: Infection Transmission Prevention and Treatment among the Patients on Methadone

Infection transmission prevention				
Year	Number of patients	HIV	HEPATITIS C	TB
2014	22	7	9	0
2015	554	90	72	1
2016	597	9	9	0
2017	597	0	0	0
2018	930	20	8	0
2019	1064	9	3	0
2020	1211	1	0	0
2021	1224	0	0	0

Source: Field Data, 2021

Furthermore, the respondents were asked if they thought that the mental health among patients with opioid use disorder had improved since they started the treatment. The responses show that there had been major changes with some being able to go on with their lives without the challenges associated with OUD.

In this regard, one of the respondents said:"*Yes, there is observable behavior change. Most can go with their life and some of them have gone back to school, employment and businesses*". [Respondent A7, April 22, 2021, MNTRH].

Some of the respondents also affirmed the improvement in the mental health of the study respondents. Some of them had gone back to normal life and fertility, as already pointed out, had gone back to normal. To this end, one of the respondents said:"*Fertility among some of them is well evidenced by Medication-Assisted Treatment (MAT), many babies have been born among those on methadone maintenance treatment*". [Respondent A8, April 22, 2021, MNTRH].

Interpersonal relationships among the study respondents had also improved. In this regard, one of the respondents pointed out that: their mental health had improved compared to when they began, their behaviour was now good, cognitive functioning greatly had improved, concentration was good, and generally, patients had developed good coping skills. The respondents were asked if there had been a reduction in opioid use among the patients with opioid use disorder receiving the methadone maintenance treatment. Although a small number of the health care providers said that there had been changes, most of them were of contrary opinion. They posted that most of them were still using opioids. This was aggravated by the fact that there were high levels of use of other substances. Furthermore, one of the respondents said that 40% of the patients had relapsed. In this regard, respondent A3 said:

"No. Most of them are using other substances; they were poly-substance users. Indeed, 40% of the patients have relapsed". [Respondent A3, April 21, 2021, MNTRH].

Improvement of mental health at (r=0.247, $p<0.05$ is indicative of the fact that MAT has a significant relationship with psychosocial well-being. Therefore, they strengthened the methadone maintenance treatment that could affect the Psychosocial Well-being of patients undergoing treatment for OUD at MNTRH.

Table 4. 7: Pearson Correlation

Correlations		
		Improvement of mental health
MAT	Pearson Correlation	.247**
	Sig. (2-tailed)	.000
	N	243

**. Correlation is significant at the 0.01 level (2-tailed).
Source: Field Data, 2021.

Discussion

The study sought to determine the effect of MAT on the psychosocial well-being of the patients with OUD attending the MAT clinic, MNTRH. The study findings indicated that most of the respondents (96.3%) were under Medication-assisted treatment as well as HIV, Hepatitis C, and Tuberculosis treatment as shown in Table 4.3. This is a good indication that patients with opioid use disorder have embraced the medication-assisted treatment program. Demographic data showed that most of the patients enrolled in MAT were males at 69.5% and females at 30.5% as shown in figure 4.1. However, there was a significant drop in male patients in 2019 and 2022, which could be explained by the challenges related to Covid -19 pandemic. These findings are supported by secondary data on the enrolment and methadone retention among the patients with OUD at the Mathari National Teaching and Referral Hospital (MNTRH) Nairobi City County as shown in Table 4.1. The stakeholders, therefore, need to come up with mitigation measures in case of such a pandemic as the Covid -19 to ensure the patients do not miss their daily dosage

Adherence to the methadone is key to the effectiveness of the MAT program. The high retention of patients to the MMT could reduce the use of opioids and improve the quality of life (Jiang, 2014). There were high levels of methadone retention as in a similar study in the USA that showed an increasing negative opioids test in urine conducted at different times during the treatment (Protocal, 2016). In another similar study, the MMT clinic at Muhumbili National Hospital in Tanzania showed a 57% retention in 12 months of study. This was comparable to estimates from programs in the North. America, Europe, and Asia. (Lambdin, 2014) . Another study found that there were significant reductions in opioid use, improved mental health, and retention rates were high. (Scheibe, 2020). A study in South Africa on the outcome of high retention in opioid substitution treatment concluded that high retention is a result of the harm reduction principles and restorative justice and attraction (Marks M. S., 2020). However, in contrast, a study by Jiang, showed there were high dropout levels from MMT in China (Jiang, 2014).

The findings from the health workers' response on methadone maintenance treatment in the improvement of the mental health of the patients with opioid use disorder, showed that it had helped stop the craving for heroin (Jiang, 2014). Improvement of mental health had also been evidenced by a few withdrawals. Some of those treated had gone back to school, employment, and business return; indicating significant levels of rehabilitation (Ball & Ross, 2012). Physical examination showed that injection scars had reduced. There had also been reductions in new HIV and other infections. This corroborates secondary data from MNTRH that showed low levels of infection for patients on methadone.

The respondents were asked if there had been a reduction in opioid use among the patients with opioid use disorder receiving the methadone maintenance treatment. Although a small number of the health care providers said that there had been changes, most of them were of contrary opinion. They posted that most of them were still using opioids. This was aggravated by the fact that there were high levels of use of other substances this was in agreement with a study done in Tehran, Iran that found the patients to be using multiple substances (Shekarchizadeh, 2012). Furthermore, one of the respondents said that 40% of the patients had relapsed. This corroborates the study Hoang that shows that poor adherence to methadone risks relapse to opioid use (Hoang, 2015).

Conclusion

The results show that the medication-assisted treatment influenced the psychosocial well-being among patients with OUD at MNTRH Nairobi County. The study findings show that the mental health among patients with OUD at MNTRH (dependent variable) was influenced by Medication-assisted treatment as demonstrated by significant Pearson Correlation ($r=0.247$, $p<0.05$). Based on the findings, the patient reported improvement. There was a reduction in withdrawal symptoms, overdoses, and the number of those injecting drugs, hence a reduction in HIV, hepatitis, and T.B infections. Fertility had improved. There was notable behavior change, cognitive functioning greatly had improved, concentration was good, and generally, patients had developed good coping skills. There was resumption to school, employment, and business. However, there was a 40% relapse. Addressing the issue of relapse is important for strengthening the MAT program. Appropriate and programmatic interventions by the policymakers and stakeholders would improve the patients' psychosocial well-being. The study would be useful for future reference by other researchers.

Recommendations

It is important to carry out related studies in other MAT clinics in Kenya for comparative purposes.

A longitudinal study on the variables under investigation in this current study for five years would be interesting.

It is pertinent to decentralize MAT (Rhodes T. , 2018)services.

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Effectiveness of a Music Based Intervention in Enhancing Problem Recognition among Clients with Substance Use Disorders in Residential Treatment Centers in Kenya

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Abstract

The treatment of clients with substance use disorders (SUDs) is a challenge especially when they lack insight into the substance use problem. Such clients may not seek treatment and if they do, may not benefit much from it. Therefore there was a need to enhance problem recognition (PR) among such clients. The study sought to determine the effectiveness of music-based intervention (MBI) in enhancing problem recognition among clients with substance use disorders in residential treatment in Kenya. The objective was to determine if there were significant differences in PR between clients exposed to MBI and the control group in a selected residential treatment center in Kenya. The study used a quasi-experimental, nonequivalent control group pretest posttest design. A total of 40 clients participated in the study, with the experimental and control group having 20 participants each. Findings revealed that the experimental group had significantly higher levels of PR at post-test compared to the control group after controlling for various covariates, suggesting that MBI in addition to treatment as usual may have contributed to increased PR in the treatment group. This indicates that the MBI was effective in enhancing PR among clients with SUDs. Therefore, the MBI may be used as an evidence-based complementary intervention in enhancing problem recognition among clients with SUD in treatment settings in Kenya.

Key Words: *substance use disorder, music therapy, music-based intervention, problem recognition*

Background

Substance use disorder (SUD) is a major global challenge. According to the World Health Organization (WHO) (2017) report, SUDs are associated with a significant disease burden and are the highest cause of deaths among all mental and behavioral disorders. The report also shows that the disease burden caused by SUDs, measured in disability-adjusted life years (DALYs), increased from about 0.44 % (about 12.8 million) in the year 2000 to 0.66% (over 17.6 million people) in 2015. A recent study by the United Nations Office on Drug and Crime (UNODC) (2019) shows that about 35 million people suffer from SUDs or drug use dependence globally.

Many countries in the West are experiencing the burden of SUD cases among their population. According to Peacock *et al.*, (2018) North America (United States of America and Canada) has one of the most prevalent cannabis, opioid and cocaine dependence at 748.7 (649.8, 812.3), 650.0 (574.5, 727.3) and 301.2 (269.3, 333.7) per 100 000 people, respectively. In Eastern Europe, more than 5 % of people who use drugs suffer from SUDs (Ritchie & Roser, 2019). Similarly, in Africa statistics show that SUDs are a major challenge in the mental health edifice. According to WHO (2021) about 15.3 million people suffer from SUDs. In fact, Sankoh *et al.*, (2018) note that the number of years lost to disability as a result of SUDs among other mental health challenges increased by 52% between 2000 and 2015 in Africa. This causes a health burden to countries in Africa most of which are resource limited.

In Kenya, the National Authority for Campaign

Against Drug Abuse (NACADA) (2017) found that about 10% of people aged between 15-65 years suffered from alcohol use disorders, a majority of whom had the severe form. This indicates that SUDs such as alcohol use disorders seem to be a common phenomenon in most parts of the world, including developing countries such as Kenya.

People suffering from SUDs experience difficulties in their lives. Their physical and psychological well-being is compromised. Furthermore, they experience socio-economic challenges since their productivity and human relations are dented as a result of the disorders.

Even with these challenges it is hard for individuals with SUDs to receive treatment when they lack awareness of their problem dynamics. Therefore, problem recognition is of paramount importance in the rehabilitation and treatment of substance use disorders. Problem recognition (PR) refers to the degree of the person's acknowledgment or denial of behavioral complexities, and, personal and life problems that may result from the use of drugs (Simpson *et al.*, 1993). It is viewed as one of the indicators of motivation to treatment (Simpson, 1992; Simpson *et al.*, 1993). It precedes action or inaction to address the identified problem which in this case is difficulties arising from substance use.

Literature suggests that clients who lack insight into their drug use problems are less likely to seek treatment. For example, a study conducted among male prisoners found that the ones who were not aware that they had a substance abuse problem had not sought treatment in their lives (Brooke *et al.*, 2000). In another study clients that had low levels of problem recognition associated treatment with personal defeat (Rogers *et al.*, 2019). Low problem recognition made it difficult for them to see the need to seek treatment.

Other studies have found that problem recognition significantly predicted treatment participation and generally, treatment engagement among SUD clients (Pankow *et al.*, 2012). This indicates that with high levels of problem recognition, clients are likely to join and actively engage in treatment.

In addition, problem recognition influences the therapeutic relationship between clients and therapists. A study among offenders found that those with greater awareness of their substance use related difficulties developed more positive therapeutic relationships with their therapists (Broome *et al.*, 1997). This study seems to suggest that enhancing problem recognition is essential in building the client-therapist relationship which is a factor that may have a profound impact on treatment effectiveness.

In helping clients with SUDs enhance insight into the substance use problem, various interventions such as music-based interventions (MBI) have been used. As a complementary and alternative medical intervention, MBI is viewed as the clinical and evidence-based use of music interventions to accomplish various treatment goals within a therapeutic relationship by a therapist (Hohmann *et al.*, 2017). Therapists have employed music to enhance self-esteem (Sharma & Jadgev, 2012), positive mood (Shuman et al., 2016), change perceptions and enhance motivation (Dean, 2005).

There is evidence that MBIs have been effective in helping clients with SUDs recognize the harmful effects of drug use in their lives. In a randomized effectiveness study conducted among 104 clients in a detoxification center, Silverman (2015) found that the experimental group that received the music therapy intervention had a significantly higher mean score on problem recognition than the control group. It is noted that the study was done in a detoxification center where the primary function is medical detoxification and minimal psychosocial treatment. This raises the question whether the same would be observed in a long-term inpatient SUD treatment facility offering psychosocial treatment. Furthermore, Silverman's study's only inclusion-exclusion criteria were the ability to read English and to consent. As noted by (Garg, 2016) inclusion-exclusion criteria is important as it helps the researcher sample from a population in a reliable, objective and uniform manner. It also helps in marking out characteristics that may make an individual eligible or ineligible for the study. In addition, some of these exclusion characteristics may act as confounding factors for

the outcome of the study. Therefore in Silverman's study, there may have been characteristics that influenced the outcome, hence the need to determine if similar results would be established in a study that has inclusion and exclusion criteria, like in the current study.

In another study, Silverman (2011) conducted a randomized effectiveness trial on music therapy and change readiness among 141 clients from a university hospital detoxification unit in the USA, where the clients were admitted for a short period to get medical detoxification as part of their treatment regimen. Silverman randomly assigned the participants into three groups; rockumentary music therapy (A), verbal therapy groups (B) and recreational music therapy (C). The experimental conditions (A and C) received music therapy as the intervention while the control condition received verbal therapy. Rockumentary music therapy, entails lyric analysis combined with the story of the musicians' (mainly the band/singer of the song being discussed in the session) struggle with substance use and their journey of recovery and sobriety. Using a post-test only design, Silverman assessed the participants' readiness to change, contemplation and action score and established that the music therapy groups (A and C) had significantly higher scores on readiness to change and contemplation scales compared to the control group. Contemplation scores show that the participants realized there was a need to change from the status quo. Therefore, higher scores on contemplation could indicate that the participants' problem recognition was enhanced. In this study, the story of the musicians' struggle with substance use and their journey to recovery could have an influence on enhancing the participants' problem recognition. It may be difficult to tell whether lyric analysis was responsible for the greater scores in the rockumentary group hence the need for the current study to find out whether the use of lyric analysis, which is a technique in music therapy, could help in enhancing problem recognition.

While some studies found significant differences on the effectiveness of MBI, others did not. In a randomized clinical effectiveness trial, Silverman (2009b) compared music therapy and talk therapy (specifically lyric analysis technique) among clients in a detoxification unit in the USA. The focus of both experimental and control groups, was relapse prevention. In this study Silverman did not find significant differences in problem recognition between the two groups. Perhaps this was because the participants were at a stage where their main focus was exiting the detoxification facility. In contrast, the current research was designed to focus on patients who were in the first eight weeks of treatment in an inpatient treatment facility. It was interesting to find out whether the MBI would have an effect on the clients ability to recognize substance use as a problem in their lives. In addition, in the current study, the experimental group received four sessions of the MBI in addition to treatment as usual (TAU) while the control group received TAU only in four weeks.

With the above literature, it is evident that problem recognition is an important part of change among clients with SUDs. It is also evident that there are inconsistent findings on the effectiveness of MBIs on problem recognition where some studies have found significant differences (Silverman, 2015; Silverman, 2011) while others did not (Silverman, 2009b). It is this inconsistency in literature that shows the need for more research to build on available literature. The researchers note the dearth of findings on the effectiveness of MBI in enhancing problem recognition with most such studies done by Silverman. Because these studies were all conducted in the West, there was need for findings from music based intervention studies in developing countries such as Kenya. The current study therefore sought to fill these gaps.

The main objective of this study was to investigate on the effectiveness of music-based intervention in enhancing problem recognition among clients with substance use disorders in residential treatment in Kenya. Further, the study sought to determine if there would be significant differences in problem recognition between clients exposed to music-based intervention (MBI) in addition to treatment as usual and the control group exposed to treatment as usual (TAU) only in selected treatment centers in Kenya.

Methodology

The study employed the use of the nonequivalent control group pretest-posttest quasi experimental design. Participants were selected from SUD treatment residential facilities accredited by the National Authority for the Campaign against Alcohol and Drug Abuse (NACADA). This study required an experimental and a control group. It was however not feasible to randomly assign participants to the two groups within the same physical setting as this would pose a risk of obtaining contaminated results arising from the interaction of the participants of the two groups (experimental and control). At the same time, there was need to ensure that both the experimental and control groups were as similar as possible in characteristics and in TAU. For this reason, participants in both groups were sampled from two facilities owned and operated by the same management using one treatment model. This sampling ensured selection of clients with similar characteristics. Having the same management and treatment model also ensured that clients experienced similar conditions and, the same TAU modality during the study. This allowed the treatment and control groups to be selected from one common treatment program but in two physically distinct locations. One branch of the facility was designated as the experimental group, while the second branch, the control group through random assignment. The participants were purposively sampled based on meeting the inclusion criteria. Notably, the participants were blinded on which group (experimental or control) they belonged.

Inclusion criteria

To participate in this study, had to be: aged 18 years and above, able to consent, conversant with English, have been in the treatment center for not more than eight weeks, had to remain in treatment for the next four weeks, and, had not had MBI sessions before.

Exclusion criteria

To be excluded, they had to be younger than 18 years, not conversant with English, had been in the treatment center for more than eight weeks, were not to be present in the subsequent four weeks or had had MBI sessions before.

In line with the recommendations of Roscoe (1975) as cited by Sekaran (2003) a sample size of 30 is sufficient for research studies. A total of 40 participants met the inclusion criteria and were all included in order to cushion for those that may opt to drop out of the study. Getting more participants from other treatment centers would not be feasible as they would be receiving a different form of treatment modality (TAU) which would have contaminated the study.

A two-section questionnaire was used. The first section sought to obtain demographic information of the participants. The second section had the problem recognition scale adapted from the Texas Christian University Self-rating Form (TCU/SRF) (Simpson, 1992). This instrument was chosen as it is easy to read and understand and is suitable even for people with low literacy levels (Knight *et al.*, 1994). The problem recognition scale is a 9-item scale that designed to measure acknowledgment or denial of the behavioral problems caused by substance use (Knight *et al.*, 1994). The items are scored on a five-point Likert scale; from strongly disagree to strongly agree. A high score on this scale indicates a high level of problem recognition.

In terms of its psychometric properties, TCU/SRF Problem recognition scale has been found to be valid in measuring problem recognition among clients with SUDs (De Weert-Van Oene *et al.*, 2002). Further, the scale had a reliability coefficient of .87 for the Drug Abuse Treatment for AIDS-Risks Reduction 2 (DATAR 2) sample and .90 for the Substance Abuse Treatment Facility (SATF) sample (Knight *et al.*, 1994). The test-retest reliability of the problem recognition scale was conducted using the pre and post-test data of the 20 participants in the control group (they did not receive the MBI). The findings indicated that problem recognition had a reliability coefficient of .87. The test-retest reliability coefficients of the PR scale was considered acceptable (>.70) as suggested by Wheelan (2014).

Before commencement of the study, the researchers obtained ethical clearance from the

Kenyatta University Ethics Review Board and a research permit from the National Commission for Science Technology and Innovation (NACOSTI). All participants consented to be part of the study after.

At the beginning of the study, the researcher-therapist conducted a pretest on problem recognition using the TCU/SRF problem recognition scale on both the experimental and control groups after which the experimental group received the MBI in four weekly 60-minute sessions, in addition to TAU, while the control group only received TAU. In this facility, TAU included conventional treatment modalities such as individual and group counseling, psychoeducation, pastoral activities and pharmacotherapy. The researcher-therapist was not involved in offering TAU, both prior to and during the study.

After the four-week intervention, a post-test was administered to both groups using the TCU/SRF problem recognition scale (Simpson, 1992) research assistants who were blinded to which group had received the intervention and which one had not.

Study data were then analyzed using One Way Analysis of Covariance (ANCOVA) to determine whether the MBI was effective in enhancing problem recognition. ANCOVA was chosen as it enables one to control for some of the confounding factors since randomization was not feasible in this study. The other two researchers were involved in the analysis of data in order to eliminate possible researcher bias in the results of this study.

Music-Based Intervention Protocol

The MBI was developed by the researcher-therapist. It comprised a live presentation of songs and structured lyric analysis sessions that focused on the enhancement of problem recognition. During the lyric analysis, participants shared their understanding of the lyrics as well as how they interpreted them in relation to their experiences in addiction. The pre-selected songs used include; "The more I drink" by Blake Shelton, "Mac Muga" by Ali Kiba, "Desparado" by Eagles and "Roar" by Katty Perry. These songs were based on four themes from the Transtheoretical model of change by Prochaska and DiClementi (1984), namely; consciousness raising, self-evaluation and discrepancies in life, decisional balance and, self-efficacy. In addition, the songs were selected based on the Iso principle that is conceptualized as the principle of matching music with the behavior of the clients (Michel & Pinson, 2005). Such music is likely to have an influence on the clients if it resonates with them and their behavior and experiences.

In the opening phase of the MBI session (15 minutes), the researcher began by checking in with the participants in an attempt to build rapport and a therapeutic alliance. This required that the participants state how their week was and how they were feeling at that moment. They were then provided the song lyric sheet and an opportunity to select instruments (djembe drum or tambourine).

In the second phase (5minutes), the researcher-therapist practiced a simple rhythm, in line with the song of the day, together with the participants playing the djembe drum and the tambourine. This was important as it encouraged engagement and participation during the session.

In the third phase (5 minutes), the researcher-therapist did a live presentation of a pre-selected song playing a six steel-string guitar accompanied by some of the participants playing the djembe drum and tambourine. The other participants were also invited to sing along to encourage participation.

The fourth phase (30 minutes) involved the analysis and discussion of the lyrics by the participants. It is at this point that the participants gave their understanding and interpretation of the lyrics in relation to their experiences with substance use. The discussions were guided by a lyric analysis discussion guide (see appendix I) to keep the participants focused on the themes of the sessions.

In the fifth and closing phase (5minutes), the researcher-therapist provided a summary of the session and a remark on the next session.

The four-weekly sessions were similar in structure as described, although each of them had its unique theme and song (see appendix II). The intervention was delivered on Tuesdays at noon over a period of four weeks in a private group therapy room, within the treatment facility.

To ensure fidelity to the intervention, the researcher developed a treatment protocol that highlighted the themes of each session based on the tenets of the transtheoretical model of change, song chosen and activities for each session (see appendix II). Additionally, the researcher developed questions that focused on the reflection and identification of issues resulting from substance use. These questions were meant to raise awareness of the participants' addiction related behaviors. Notably, the questions were from the lyrics of the respective song in the intervention and focused on the theme of the session.

Results

The research comprised 40 clients with SUDs. Majority (92.5%) of the participants were male while only 7.5% were female with the highest number aged 33-37 years (22.5%) and had attained university education (75%) while the rest had secondary education as their highest qualification. Approximately 63% of those who took part in the study were in salaried employment. In terms of admission type (voluntary or involuntary), 75% of the participants were voluntarily admitted with 80% of participants being their first time in an SUD treatment facility.

In order to analyze data from the experimental and control groups, on the effectiveness of the MBI in enhancing Problem Recognition (PR) among clients in a selected treatment center in Kenya, ANCOVA was computed. This would enable the researcher to compare data from the experimental and the control group while controlling for various covariates that may have an effect on the findings.

To use ANCOVA, the assumptions of normality of distribution, homogeneity of variance across the groups and a linear relationship between the covariate and the dependent variable were tested. The findings are as presented on Figure 1.

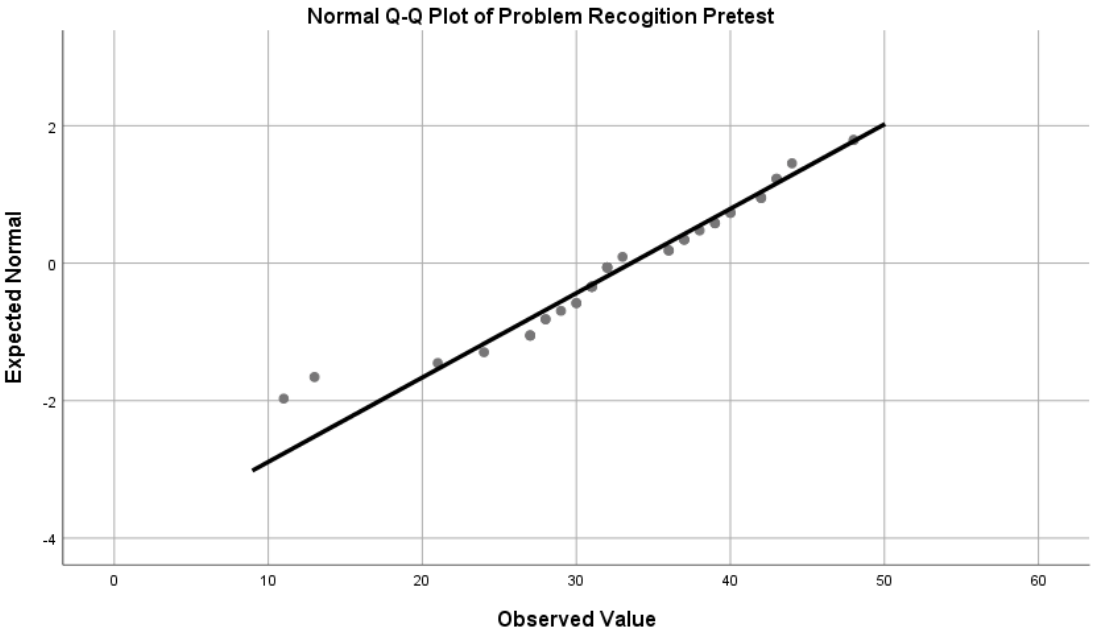

Figure 1 *Problem Recognition Scatter Plot for Normal Distribution of Means*

The results indicated that the level of problem recognition was normally distributed and since the *p* value was greater than .05, at W (40) = .95 *p*=.10, the assumption of normal distribution was met as demonstrated in Figure 1.

On the second assumption, namely, homogeneity of variance the Levene's test was computed. This test was to find out whether the variance is equally distributed across the two independent groups, that is, the experimental and the control groups. The results are as presented on Table 1.

Table 1

Levene's Test of Equality of Error Variances

Dependent Variable: Problem Recognition Post-test

F	df1	df2	Sig.
1.14	1	38	.29

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Problem Recognition Pretest + Age of Respondent + Level of Education + Nature of Admission + Number of Admissions + Group Membership

The difference in variance between the two groups was not significant F (1, 38) = 1.14, p =.29 reported at the value p < .05 as shown on Table 1. This indicates that the data met the assumption of equal variance.

The researchers then proceeded to test the assumption on the linear relationship between the covariate and the dependent variable (problem recognition) using the Pearson product-moment correlations. The findings were as presented on Table 2.

Table 2

Pearson Correlation Linear Relationship Test

		Problem Recognition Pretest	Problem Recognition Posttest
Problem Recognition Pretest	Pearson Correlation	1	.785**
	Sig. (2-tailed)		.000
	N	40	40
Problem Recognition Total Posttest	Pearson Correlation	.785**	1
	Sig. (2-tailed)	.000	
	N	40	40

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

As Table 2 shows, there was a strong positive correlation between the covariate (problem recognition pre-test) and the dependent variable (problem recognition post-test) which was statistically significant at r = .71, n =40, p = .00. This indicates that the covariate, PR pre-test, and the dependent variable, PR post-test, have a linear relationship. Therefore, the data met this assumption.

Since the data met the assumptions, the null hypothesis that there were no significant differences in problem recognition (PR) between clients exposed to MBI in addition to TAU and the control group only exposed to TAU was tested. The findings are presented in the following section.

MBI and Problem Recognition One-Way ANCOVA Analysis

A pre-test on Problem Recognition (PR) was conducted at the beginning of the study on both the treatment and control groups. After the MBI was administered to the experimental group, in addition to TAU, a post-test was carried out on both the groups (experimental and control (exposed to TAU only). ANCOVA was performed to compare the pre-test and post-test means. The findings are as presented on Table 3.

Table 3

Descriptive Pre-Test and Post-Test Means Comparison between the Experimental and the Control Group

	N=	PR Pre-test means	Std. Deviation	PR Post-test Means	Std. Deviation	PR Post-test Adjusted Means	Std. Errors
Experimental Group	20	34.05	8.71	40.85	7.20	40.46[a]	1.01
Control Group	20	33.05	7.74	35.50	7.56	35.88[a]	1.01
Total	40	33.55	8.15	38.18	7.77		

a. Covariates appearing in the model are evaluated at the following values: Problem Recognition Pretest = 33.55, Age of the respondent = 4.28, Level of education = 2.75, Nature of Admission = 1.25, Number of Admissions = 1.30.

At post-test, results revealed that the experimental group had a higher PR mean score (M= 40.85, SD= 7.20) compared to the control group (M= 35.50, SD= 7.56) as shown on Table 3. The standard deviation of the control group (SD= 7.56) was slightly higher indicating that the PR scores of the control group were spread out from the mean than the ones of the experimental group (SD= 7.20). The researcher controlled for a number of covariates namely; problem recognition pretest scores, age, level of education, nature of admission and number of admission, and found that the experimental group had a higher PR mean score of M= 40.46, SE= 1.01, compared to the control group that had M= 35.89, SE= 1.01. Notably, even after statistically removing the covariates, the experimental group's PR mean score remained higher than that of the control group.

The researchers then tested the null hypothesis that there are no significant differences in Problem Recognition (PR) between clients exposed to music-based intervention (MBI) in addition to TAU and the control group in selected treatment centers in Kenya using one-way ANCOVA. The results are as presented on Table 4.

Table 4

One-Way ANCOVA Problem Recognition Post-test Means Comparison between Experimental and Control Group

Tests of Between-Subjects Effects

Dependent Variable: Problem Recognition Posttest

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1704.065[a]	6	284.011	14.381	.000	.723
Intercept	106.159	1	106.159	5.375	.027	.140
Problem Recognition Pretest	921.061	1	921.061	46.639	.000	.586
Age of Respondent	1.267	1	1.267	.064	.802	.002
Level of Education	33.635	1	33.635	1.703	.201	.049
Nature of Admission	.128	1	.128	.006	.936	.000
Number of Admissions	1.465	1	1.465	.074	.787	.002
Group Membership	199.318	1	199.318	10.093	.003	.234
Error	651.710	33	19.749			
Total	60649.000	40				
Corrected Total	2355.775	39				

a. R Squared = .723 (Adjusted R Squared = .673)

The results revealed that there was a significant difference in the problem recognition (PR) means F (1, 33) =10.09, p=.00, n_p^2 =.23 between the experimental and the control as shown on Table 4. Therefore, the null hypothesis was rejected (at $p < .05$) in favor of the alternative hypothesis that there are significant differences in PR between clients exposed to MBI in addition to TAU and the control group, in selected treatment centers in Kenya. This suggests that MBI in combination with TAU is associated with significantly higher outcomes in problem recognition compared to the TAU only. The findings indicate that the four week MBI had a positive effect on improvement of PR among clients with SUDs.

Discussion

The results show that there were significant differences in problem recognition (PR) between the experimental group and the control with the experimental group (exposed to MBI in addition to TAU) having significantly higher means than the control group (only received TAU) after statistically controlling for the covariates. Therefore the null hypothesis was rejected in favor of the alternative hypothesis that there are significant differences in PR between clients exposed to MBI and the control group in selected treatment centers in Kenya.

These findings are similar to those of Silverman's (2015) that showed significant group differences on PR among clients with SUDs. It is important to note that while the current study was conducted among clients in an inpatients SUD facility, Silverman had investigated patients in a detoxification unit. This may be evidence that music-based intervention is effective in increasing PR in different addiction treatment environments including long-term residential facilities.

The findings of the current research are not consistent with Silverman's (2009b) study. Silverman found no significant differences in PR between groups that received talk therapy and the ones that received music therapy. This could be because this study was conducted in a detoxification center where the primary focus is medical treatment. Furthermore, the focus of Silverman's study was relapse prevention which indicates that the participants were almost concluding their stay at the detoxification center. The current study on the other hand engaged clients who were in their first few weeks of treatment and its focus was on enhancing recognition of the substance use problem.

The current findings could be due to the possibility that through music, the MBI influenced the participants' self-awareness. Research shows that music serves various psychological functions when people listen to it. For example, Schäfer et al. (2013) in their study of music established that one of the reasons people listen to music is to achieve self-awareness. Therefore, it is possible that the participants' self-awareness was enhanced during the MBI sessions while listening and interrogating the lyrics. Such self-awareness in turn increased insight on the problem of substance use as well as the resulting challenges in their lives.

In addition, the music used in the intervention reflected the universality of the human experience. For example, the lyrics of the song, "the more I drink" by Blake Shelton reflects the life of a person recovering from alcohol use disorder and the experiences he had. His story is similar to people living with SUDs even in Kenya, yet the song is written in the context of a person in a Western country. This acted as a source of comfort and probably reduced the shame and self- and internalized stigma among participants upon realizing that they are not the only ones who suffer from SUDs and have had difficult and shameful experiences in their lives in addiction. Research shows that internalized stigma reduces the likelihood of problem recognition (Rogers *et al.*, 2019). According to Yalom and Molyn (2008), knowing people with similar experiences and working through the similar issues as one is, helps one realize that they are not alone in terms of their experiences. The sense of universalism of human experience triggered by the lyrics probably acted as a bridge in acknowledging the problem of drug use addiction and the challenges brought about by it. Therefore the MBI would benefit clients who suffer shame and internalized stigma as it creates a safe opportunity of self-reflection which in turn may enhance problem recognition.

It is also possible that since the theme of the songs chosen were based on raising consciousness on the destructive effect of drug use, the negative effects on relationships and the problems that it brought to their lives, the clients were able to reflect on their lives and as a result recognized and acknowledge the significant issues caused by use of drugs. This recognition and acknowledgement was reflected in the higher scores on the PR scale among the participants in the experimental group regardless of their nature of admission (voluntary or involuntary) among other variables that were controlled for. This is mirrored in the Transtheoretical Model of Behaviour Change, which posits that consciousness raising and evaluation of behaviour is important in influencing motivation

towards change (Prochaska & DiClementi, 1984). Thus, since the MBI evoked the participants' self-evaluation through consciousness raising it may have influenced the increase of problem recognition.

In the current study, the use of MBI in addition to TAU may have improved PR through the song's lyrics whereby clients were able to reflect about themselves and their lives. The nature and design of the MBI created an environment that was less threatening and provided a more experiential tool of processing their thoughts, emotions and experiences. This offers therapeutic benefits that may have resulted in increased PR. This suggests that MBI may be a useful tool for inclusion as part of therapeutic intervention for clients in treatment settings for SUDs.

Limitations of the study

Notably, the study used a small sample and only one treatment facility. Therefore the findings of this study should be generalized with caution.

Conclusion

The results showed that the MBI in addition to TAU seems be effective in enhancing problem recognition among clients with SUDs as the experimental group had higher PR means even after controlling for various variables. This indicates that MBI may be effective as a complementary tool in enhancing insight on the drug use problems among clients with SUDs even when they are not ready for treatment. Furthermore, since the MBI enhanced PR despite of the number of admissions among other covariates shows that it may be a useful intervention among clients who have relapsed and been readmitted.

Based on these findings, the professionals working in the SUD treatment edifice such as counselors, psychologists and social workers may use MBI as a complementary and experiential treatment modality in their programs to enhance PR. This may be helpful while working with clients who have little insight on their substance use problem as well as the ones who are ambivalent. In addition, due to the potential that the MBI has as an experiential and complementary treatment modality, the institutions of higher learning training addiction treatment and mental health practitioners should include music-based intervention and music therapy courses in their training programs. This is paramount in enhancing competence among the music-based interventionists and music therapists especially in Kenya where the practice is still young.

Indeed, there is need for more research in the area of music-based interventions and music therapy. Future studies may consider a randomized controlled trial on the effectiveness of MBI on problem recognition among clients with substance use disorder in residential and out-patient treatment facilities in Kenya. In addition, one may use mixed methods to conduct a similar study in order to also document the participants' lived experiences.

Conflict of Interest: None declared

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Prevalence of co-occurring mental disorders among in-patients at the Alcohol & Drug Abuse Rehabilitation Unit, Moi Teaching & Referral Hospital in Eldoret

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Abstract

Globally, the burden of mental disorders among patients attending treatment for substance use disorders is substantial. Little has been done to explore this subject in Kenya. The aim of this study was to investigate the prevalence rates of mental disorders among persons undergoing in-patient rehabilitation for substance use disorders at the Alcohol and Drug Rehabilitation (ADAR) Unit, Moi Teaching and Referral Hospital. This was a descriptive cross-sectional study. The Mini International Neuropsychiatric Interview Version 7.0 was used to investigate the lifetime DSM-5 mental disorder diagnoses. Fifty three (53) adult patients consecutively admitted to the unit between June 2019 and May 2020 were interviewed by the investigators two weeks after admission. The data was analyzed using descriptive statistics. The mean age for the respondents was 38.13 years (SD=9.26 years). All 53 (100.0%) of the participants had at least one lifetime mental disorder diagnosis. Antisocial personality disorder (69.8%), Social Anxiety Disorder (49.1%), and Major Depressive Disorder (47.2%) were the most common mental disorder diagnoses. A large proportion of in-patients at the ADAR unit, MTRH had a lifetime mental disorder. We recommend routine screening for mental disorders for patients admitted for in-patient rehabilitation at the facility. In addition, management approaches for in-patient substance use disorder rehabilitation should address co-occurring mental disorders.

Key words: *substance use disorder, mental disorder, rehabilitation, in-patient, prevalence*

Introduction

High rates of mental disorders have been reported among persons with substance use disorders (SUDs). Regier et al., (1990) in one of the largest co-morbidity surveys, reported that 37% and 53% of patients with an alcohol and drug use disorder respectively in the United States (US) had a co-occurring mental disorder. In that study, the odds of having a mental disorder were reported as higher for those in SUD treatment settings. More recent studies confirm this high burden of mental disorders among persons attending treatment for SUDs. Dauber et al., (2018) and Pereiro et al., (2013) reported that 50.7% and 56.3% of persons attending treatment for substance use had a co-occurring mental disorder in Germany and Canada respectively. In a systematic review, Kingston, Marel, & Mills, (2017)and 59 full articles were assessed for eligibility. Eighteen studies were included in the review. KEY FINDINGS Prevalence estimates of current mental disorders in substance use treatment clients varied (47 to 100% reported that 47-100% of persons seeking SUD treatment in Australia, had at least one mental disorder diagnosis. Studies report that the most common mental disorders among persons with SUDs are mood disorders, anxiety disorders, borderline personality disorder and antisocial personality disorder (Chahua et al., 2015; Dauber et al., 2018; Kingston et al., 2017; Pereiro et al., 2013)42.2% of patients suffering from at least an Axis I condition and 20.2% from some Axis

II condition. Mood and anxiety disorders and borderline and antisocial personality disorders were the most frequent disorders in both axes. Conclusions:A high comorbidity was found between mental and substance use disorders (SUD.

SUDs are associated with significant disability worldwide. In 2015, alcohol and drug use disorders resulted in 13,048,894 and 17,628,729 Disability Adjusted Life Years (DALYs) respectively (World Health Organization, 2017). In Kenya, the DALYS associated with alcohol and drug use disorders were 54,000 and 13,900 respectively in that same year (World Health Organization, 2017). The co-occurrence of mental disorders with SUDs is likely to exacerbate this burden. For example, a study conducted among cocaine-dependent adults in Spain, (González-Saiz et al., 2014) found that those with comorbid mental disorders had worse treatment outcomes compared to those with cocaine use disorder only. In addition, severer psychosocial problems (Vélez-Moreno et al., 2017)and their concomitance generates poorer therapeutic prognosis and more severe psychosocial problems than either disorder alone. The purpose of this study was to compare three models of the relationship between personality disorders, substance use disorders and substance-related problems. Substance use disorder patients (n = 199, severer levels of socio-occupational dysfunction and higher levels of health service utilization (Prior et al., 2017)prevalence and correlates of mood and anxiety disorders among those with a (i have been reported among those with SUD and co-occurring mental disorders compared to those with SUDs only.

Given the high rates and adverse consequences of co-occurring disorders, it is important that SUD treatment incorporates management for mental disorders. Several authorities have highlighted the importance of integrated management. The Substance Abuse & Mental Health Services Administration (SAMHSA) (SAMHSA, 2020) and the United Nations Office on Drugs and Crime (UNODC) (UNODC, 2020) emphasize that mental disorders can worsen the course of SUDs, and recommend that all persons presenting for SUD treatment should be screened for mental disorders. Both authorities highlight the importance of integrated management for those with a co-occurring disorders (SAMHSA, 2020; UNODC, 2020).

In Kenya, little has been done to investigate the burden of mental disorders among persons in treatment for SUDs. A study conducted by Ndetei et al., (2009), at the Mathari Drug Abuse Rehabilitation Unit, reported that all participants (n=12), had a comorbid mental disorder diagnosis. In addition to a lack of data on mental disorders among persons with SUDs, existing guidelines for the management of SUDs do not adequately address co-occurring disorders (Ministry Of Health, 2017; NACADA., 2010) . The aim of the current study is to determine the prevalence of mental disorders among patients admitted at the Alcohol and Drug Abuse rehabilitation (ADAR) Unit, Moi Teaching and Referral Hospital (MTRH). The findings of this study are useful in informing policy and practice within MTRH, and in other substance use treatment settings in Kenya.

Methodology

This was a descriptive cross-sectional study. The recruitment of the study subjects was carried out at the Alcohol and Drug Abuse Rehabilitation (ADAR) unit of MTRH between June 2019 and May 2020. The MTRH is the second largest referral hospital in the Kenya serving a catchment population of about 18 million. The in-patient ADAR unit has a capacity of 16 beds with 11 beds allocated to males and 5 beds for females. The unit runs a 90-day medically managed intensive in-patient service, delivered by a multidisciplinary team comprising of psychiatrists, psychological counselors, nurses, occupational therapists, nutritionists and other support staff. All patients are admitted into the unit voluntarily in accordance with the *Mental Health Act (1989)*. The study population consisted of adult patients admitted at the ADAR unit of MTRH during the study period. The study included all adult (18 years and above), patients consecutively admitted to the unit during the 12 month study period. We excluded those who were too ill to respond. The Mini International Neuropsychiatric Interview (MINI)

version 7.0 for DSM-5 was used to collect socio-demographic data on age and gender as well as data on the mental health of the respondents. The MINI is a short structured diagnostic interview for Diagnostic Statistical Manual fifth edition (DSM-5) mental disorders. The tool diagnoses the major Axis I mental disorders, and one Axis II disorder (Antisocial personality disorder). The MINI has been validated against the Structured Clinical Interview for DSM diagnoses (SCID) and the World Health Organization World Mental Health - Composite International Diagnostic Interview (Sheehan et al., 1998). It however has a much shorter administration time, about 15 minutes.

Participants were recruited two weeks after admission to the ADAR unit by a trained research assistant. A two week period was allowed after admission to ensure that any mental health symptoms experienced were not the direct result of substance use. The process of obtaining informed consent was carried out by the research assistant and witnessed by a consultant in psychiatry who had the capacity to understand the merits, risks and procedures of the research and was independent of the research team. Once consent was obtained, the MINI questionnaire containing unique patient identifiers was administered to assess for occurrence of mental disorders. The data was collected using face to face interviews. Consent was obtained from patients who were mentally stable.

Data obtained was verified and entered into a secure SPSS database. Anonymity was maintained by excluding any personally identifiable information from the dataset. Data was analyzed using SPSS version 25. Continuous variables were summarized using means and standard deviations. Categorical data was summarized using frequencies and percentages and presented using frequency tables.

Ethics review and approval was sought and obtained from the MTRH/Moi University School of Medicine Institutional Research and Ethics Committee. Only those who gave consent participated in the study. All patients were given appropriate and indicated care regardless of their willingness to participate in the study or their capacity to consent.

Results

Socio-demographic characteristics of the participants

A total of 53 respondents participated in the study. The mean age for the respondents was 38.13 years (SD=9.26 years). Of those who responded, 43 (81.1%) were male **(Table 1).**

Prevalence of substance use disorders

Fifty one (96.2%) study participants met criteria for a 12-month alcohol use disorder. The second and third most common SUDs were stimulant (58.5%) and cannabis use disorders (26.4%). Prevalence rates for the other SUDs are presented in **Table 2**.

Prevalence of lifetime mental disorders

All (100%) of the study participants met criteria for at least one lifetime mental disorder. The most common mental disorders were antisocial personality disorder (ASPD) (69.8%), social anxiety disorder (49.1%), Major Depressive Disorder (47.2%), agoraphobia (43.4%), panic disorder (43.4%) and generalized anxiety disorder (GAD) (43.3%) **(Table 3).** Complete data on the prevalence of specific mental disorders has been provided in **Table 3**.

Discussion

The finding that 100% of patients admitted to the ADAR Unit, met criteria for at least one lifetime mental disorder is broadly consistent with those of other studies examining the prevalence rates among patients attending SUD treatment. In a systematic review of the prevalence of co-morbid mental health conditions among people accessing treatment for substance use in Australia, the authors reported the prevalence estimates of current mental disorders to be as high as 100% (Kingston et al., 2017)and 59 full articles were assessed for eligibility. Eighteen studies were included in the review. KEY FINDINGS Prevalence estimates of current mental disorders in substance use treatment clients varied (47 to 100%. In a study conducted in New Zealand, 90% of the patient attending an out-patient

substance use treatment service, had a lifetime mental disorder (Adamson et al., 2006). In Kenya, a study conducted among patients at the Mathari Hospital Drug Abuse Rehabilitation Unit, found that 100% of those assessed had a comorbid mental disorder (Ndetei et al., 2009). The high rates of mental disorders in the current study are not surprising. The ADAR unit provides intensive in-patient treatment for SUDs and is likely to admit patients with severe SUD symptoms and multiple physical and mental health comorbidities.

The most common mental disorder in our study was ASPD (69.8%). Other studies have reported much lower rates. In a meta-analysis conducted among Chinese patients with heroin use, 30% had ASPD (Zhong et al., 2014). Pereiro et al., (2013)42.2% of patients suffering from at least an Axis I condition and 20.2% from some Axis II condition. Mood and anxiety disorders and borderline and antisocial personality disorders were the most frequent disorders in both axes. Conclusions: A high comorbidity was found between mental and substance use disorders (SUD in a study conducted among 2300 patients attending SUD treatment in Spain, reported that 4.6% of them had a diagnosis of ASPD. In a study conducted among persons admitted for SUD treatment in Norway, 16% had ASPD (Langås et al., 2012). The higher prevalence rates of ASPD in our setting are a likely reflection of substance use treatment seeking patterns in Kenya. Often the most severely ill and or the most dysfunctional patients get referred for, or seek treatment. Another possible reason for the high rates of ASPD in our study is that most of our patients were male, and ASPD has been associated with being male (Werner et al., 2015).

The association between ASPD and substance use is well documented in literature. Studies have shown higher rates of antisocial behavior among people using substances compared to those who do not (Nardi et al., 2012). This could partly be explained by the fact that antisocial behavior confers risk for substance use due to the associated impulsivity, affective dysregulation, impaired executive functioning and difficulties with modifying behavior based on outcomes (Brennan et al., 2017). The high rates of ASPD in our study are worrying because ASPD has been found to be significantly associated with persistence of SUDs (Hasin et al., 2011).

Social anxiety disorder (49.1%), major depressive disorder (47.2%), generalized anxiety disorder (GAD) (43.4%), agoraphobia (43.4%) and panic disorder (43.4%) were the next most prevalent mental disorders in our study. Other studies have reported similar findings with mood and anxiety disorders as the most predominant. In a systematic review of studies conducted in Australia, Kingston et al., 2017and 59 full articles were assessed for eligibility. Eighteen studies were included in the review. KEY FINDINGS Prevalence estimates of current mental disorders in substance use treatment clients varied (47 to 100% reported that mood and anxiety disorders were the most common, with the prevalence of current depression ranging from 27 to 85% and current generalized anxiety disorder ranging from 1 to 75%. Pereiro et al., (2013)42.2% of patients suffering from at least an Axis I condition and 20.2% from some Axis II condition. Mood and anxiety disorders and borderline and antisocial personality disorders were the most frequent disorders in both axes. Conclusions:A high comorbidity was found between mental and substance use disorders (SUD conducted a study among 2300 patients attending SUD treatment in Spain. He found that mood (22.2%) and anxiety disorders (14.3%) were the most prevalent of the Axis 1 disorders. In a study conducted at Mathari Hospital Drug Abuse Rehabilitation Unit, 100% of the patients assessed were found to have a mood disorder (Ndetei et al., 2009).

Although PTSD (41%), bipolar disorder (28%), suicidality (22%) and psychotic disorders (13%) were the least common mental disorders, their prevalence rates were nonetheless significant. Given the potential impact of these disorders on disability and morbidity (Vigo et al., 2016)we estimate the disease burden for mental illness to show that the global burden of mental illness accounts for 32·4% of years lived with disability (YLDs, as well as on SUD treatment outcomes, it is important that interventions that address these disorders are implemented at the ADAR unit.

A possible reason for the high rates of co-occurrence between mental and SUDs is that mental disorders increase the risk for substance use. For example persons with mental disorders often self-medicate with substances in an attempt to relieve their mental health symptoms (Hawn et al., 2020). Another possible reason is that substances increase the risk of occurrence of mental disorders. For example cannabis use has been linked to the emergence of paranoia, and depressive and anxiety symptoms (Freeman et al., 2015). A systematic review and meta-analysis reported that alcohol use disorders were associated with increased risk of subsequent depressive symptoms (Li et al., 2020)regarding alcohol intake, the risk of developing depressive symptoms might vary with alcohol intake level. We aimed to investigate the association between AUD, alcohol intake and subsequent depressive symptoms. Design and Setting: We conducted a systematic search in PubMed, Embase and PsycINFO for cohort studies on the association between AUD or alcohol intake and subsequent depressive symptoms. Participants: We included 338 426 participants from 42 studies. Six and four studies analyzed only females and males, respectively. Measurements: We combined risk estimates for developing depressive symptoms using a random-effects model. We divided alcohol intake into abstinence, light (0–84 g/week. Since our study was cross-sectional, we were not able to determine which disorder preceded the other. Future longitudinal studies ought to be conducted to help clarify the link between SUDs and mental disorders in our setting.

Implications for policy and practice

The findings of this study have 3 key implications for practice and policy both within MTRH and within other SUD in-patient treatment facilities in Kenya:

Firstly, it is important that routine screening for mental disorders is conducted for patients attending SUD in-patient treatment. The high rates of a broad range of mental disorders in our study highlight the importance of conducting comprehensive mental health screening for persons seeking treatment for SUDs. Well established tools that have been validated in our setting such as the Primary Health Questionnaire-9 (Kroenke et al., 2001), the Generalized Anxiety Disorder scale-7 (Spitzer et al., 2006)there is no brief clinical measure for assessing GAD. The objective of this study was to develop a brief self-report scale to identify probable cases of GAD and evaluate its reliability and validity. METHODS A criterion-standard study was performed in 15 primary care clinics in the United States from November 2004 through June 2005. Of a total of 2740 adult patients completing a study questionnaire, 965 patients had a telephone interview with a mental health professional within 1 week. For criterion and construct validity, GAD self-report scale diagnoses were compared with independent diagnoses made by mental health professionals; functional status measures; disability days; and health care use. RESULTS A 7-item anxiety scale (GAD-7 and the PTSD Checklist for DSM-5 (PCL-5) (Weathers et al., 2013) could be used to screen for depression, GAD and PTSD respectively. The MINI (Sheehan et al., 1998), a brief diagnostic instrument could be used to assess for ASPD as well as for other DSM-5 mental disorders.

Secondly, we recommend that SUD management, in in-patient or residential settings in Kenya, incorporates treatment for mental disorders. Management approaches must include interventions that address both SUDs and mental disorders simultaneously. Given the high rates of ASPD in our study, we recommend that treatment approaches that address this disorder should be prioritized. Thylstrup et al., (2015) in a randomized control trial, found that an Impulsive Lifestyle Counselling Intervention, delivered over 6 sessions resulted in modest reductions in substance use and antisocial behavior among persons attending SUD treatment. Such an intervention could be implemented in our setting.

Thirdly, SUD rehabilitation facilities ought to have adequate capacity to manage mental disorders. This could be achieved by (1) developing facility guidelines or policies that require for mental health screening to be routinely practiced; (2) ensuring that qualified staff with competencies in delivering appropriate mental health interventions are available; and (3) forming linkages with existing mental health facilities for specialized mental health treatment where necessary.

The strengths of this study are that a standardized tool was used to assess for mental disorders. In addition, the study assessed for a wide range of mental disorders, and assessments were conducted two weeks after admission to ensure that mental health symptoms were not substance induced.

We acknowledge two limitations. The sample size was relatively small. This is due to the fact that the unit has a small capacity and only a limited number of admissions are possible in any given period. Secondly, our sample included patients seeking intensive in-patient treatment for severe SUDs. Based on these two limitations, our study findings may not be generalizable to the other SUD patients in Kenya. Our findings nonetheless provide recent and comprehensive data on the prevalence of mental disorders among persons seeking in-patient SUD treatment in Kenya. Future studies with larger samples and conducted across several treatment settings could be useful in improving generalizability of findings.

Conclusion:

The findings of this study indicate a high prevalence rate of mental disorders among patients attending in-patient SUD rehabilitation at MTRH. ASPD, depression, and anxiety disorders were the most common mental disorders diagnosed. Management for persons with SUDs at MTRH, and in other in-patient settings in Kenya, should incorporate assessment and treatment for mental disorders.

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Tables:

Table 1: Socio-demographic characteristics of the participants

Variable	Levels	n (%) / Mean ± SD
Age (Years)		38.13 ± 9.26
Sex	Female	10 (8.9%)
	Male	43 (81.1%)

Table 2: Prevalence of substance use disorders

Substance use disorder	Frequency* (n=53)	%
Alcohol use disorder	51	96.2
Cannabis use disorder	14	26.4
Stimulant use disorder	31	58.5
Opioid use disorder	0	0.0
Sedative/hypnotics/ anxiolytics use disorder	0	0.0
Other substance use disorders	2	3.8

* There was co-occurrence of substance use disorders among the participants. The frequency of the substance use disorders is therefore more than 53.

Table 3: Prevalence of lifetime mental disorders

Mental disorder	Frequency* (n=53)	%
At least one mental disorder	53	100
Antisocial personality disorder	37	69.8
Social anxiety disorder	26	49.1
Major depressive disorder	25	47.2
Generalized anxiety disorder	23	43.4
Agoraphobia	23	43.4
Panic disorder	23	43.4
Post-traumatic stress disorder	22	41.5
Bipolar mood disorder	15	28.3
Suicidality	12	22.6
Psychotic disorder	7	13.2
Eating disorder	3	5.7

* There was co-occurrence of substance use disorders among the participants. The frequency of the mental disorders is therefore more than 53.

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Production, Sale, and Distribution of Unrecorded Liquor in Kakamega and Uasin Gishu Counties in Kenya

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Abstract

Alcohol not captured in government statistics is referred to as unrecorded alcohol and accounts for 25% of all alcohol consumed globally, with prevalence in low and middle-income countries, Kenya inclusive. Alcohol control in Kenya is backed by national policies and executive orders since the colonial period. However, the control of unrecorded alcohol has not been effective given its growth and persistence in the country, despite government efforts towards the standardization of artisanal alcohol. This study sought to investigate the factors that motivate individuals to produce and trade in illegal artisanal liquor in Kakamega and Uasin-Gishu counties. A cross-sectional research design was adopted, and both qualitative and quantitative data were collected using interview schedules and questionnaires from 30 illicit brew traders and 124 National Government Administrators (NGAOs) at the street level respectively. Data were analyzed using descriptive statistics and presented thematically. It was found that bribery, poverty, laxity among authorities, high demand for *Chang'aa* and *Busaa*, as well as the quest for profit, among other factors, motivated individuals to produce, sell, and distribute unrecorded alcohol in Kakamega and Uasin-Gishu counties.

Keywords: *Unrecorded alcohol, illicit brews, motivations, policy*

Introduction

Unrecorded alcohol refers to all kinds of alcohol not captured by formal government statistics and is therefore not taxed (Probst, 2021; Mkuu, *et al.,* 2019; Kipchumba, 2017). Unrecorded alcohol varies depending on the country, region, culture, and ingredients. Additionally, liquor plays different roles, specific to certain cultures and events (Rehm *et al.,* 2014). They can be categorized into surrogate alcohol, comprising those used in industrial or medical contexts, counterfeit alcohol, artisanal alcohol produced at home through fermentation and distillation, illegally produced, and cross-border smuggled alcoholic beverages (Kipchumba, 2018).

Alcohol is estimated to cause a 5.2% global burden of diseases and it is associated with increased risky behaviors linked to bodily harm, diseases, and deaths (Mkuu, *et al.* (2019). WHO (2016) further reported that 60 medical conditions are blamed on alcohol consumption. Some of the diseases are liver cirrhosis, stroke, accidents such as poisonings, drowning, self-inflicted injuries, etc. (Babor, 2016). Globally, an approximation of 1.3 billion people are affected by alcohol (Amakobe and Mauyo, 2021). According to WHO (2014) and IARD (2017), unrecorded alcohol, otherwise known as illicit liquor accounts for 25% of all alcohol consumed, with prevalence being higher in both lower and middle-income countries, inclusive of sub-Saharan Africa. Ferreira-Borges et al., (2016) and Ferreira-Borges, Parry, &Babor (2017) reported that 30% of all alcohol consumed in the African region is unrecorded.

In East Africa, 90% of alcoholic beverages in Tanzania are unrecorded (Taeka. 2015), and 74% in Kenya (Musungu and Kosgei, 2015). Moreover, the Ministry of Health (2015) reported that 36% of adult Kenyans consume illicit alcohol, particularly homemade artisanal alcohol such as *busaa* and *Chang'aa*. In the year 2010, the Alcohol control policy in Kenya

was enacted. The policy amalgamated all other laws that were in place, and further, provided for decentralized control of alcohol. The Alcoholic Drinks Control Act 2010 thus provided for an avenue to legalize homebrews (National Council for Law Reporting, 2010). An amendment of the Act in 2014, provided harsh penalties for those adulterating the brews (Up to Ksh. 10 million), emphasized hygienic production of the alcohol, and standardized packaging of the liquor in glass bottles rather than in sachets or plastic containers (National Council for Law Reporting, 2014).

Despite decentralization of alcohol control function to county governments, penalties for partaking in illicit brew trade, and the control of artisanally produced alcoholic beverages, the liquor is still produced and consumed and is further causing Methanol poisoning and deaths in many regions in Kenya (Carey et al., 2015 & Kiruthu, 2014; Kipchumba, 2021). The policies in place, executive efforts, and media publicity on the effect of illicit brew consumption are yet to achieve substantial impact in controlling the production, distribution, sale, and consumption of illegal artisanal liquor (NACADA, 2011). The research, therefore, sought to establish the motivating factors that lead to the continuity of illicit brew production, distribution, and sale in Uasin Gishu and Kakamega counties in Kenya.

Research problem

Kenya, since the pre-colonial period, has had policies, both informal from traditional societies and formal from the colonial and post-independent governments aimed at curbing alcohol and substance abuse. Since the colonial era illicit artisanal alcohol production distribution, sale and consumption were controlled by different laws and executive orders (Kwambai and Kimutai, 2017). The General Act of Brussels, 1889-1990, The village headman Regulation Act 1902, The 1971 Traditional Liquor Licensing Act, the 1980 Chang'aa Prohibition Act, and the 2010 and current legal framework, the Alcoholic Drinks Control Act, are the policies each targeting to control illicit brewing, distribution and sale for over a century (NACADA, 2011).

Regardless of the policies in place, illicit brew-related deaths and injuries have been reported spanning decades (Musungu and Kosgei, 2015), Kakamega and Uasin Gishu inclusive. According to Abdulkadir (2016), the police officers destroyed over 4000 liters of *chang'aa* an illicit distilled artisanal spirit, and over 11100 liters of *Kangara*, a mixture of ingredients used to manufacture the illicit liquor such as *busaa* and to distill into *changaa*, within a day. In Uasin Gishu County, a death rate of 20 people per month is attributed to illicit liquor (Ndanyi, 2018). Despite the information, studies on illicit alcohol in the counties (Tuwei, 2014; Muregi, 2017; Komen, 2014; Takahashi et al, 2017; Kinyanjui, 2013) analyzed substance abuse but focused on other aspects of the trade other than the motivations of the underground trade despite policies in place. The objective of the study was therefore to explore the motivations behind the persistence of the illicit brew trade in Kakamega and Uasin Gishu counties.

Methodology

The study adopted a cross-sectional research design, utilizing both interview schedules and questionnaires to collect qualitative and quantitative data. Kakamega and Uasin Gishu counties had a total of 486 National Government Administrative officers at the street level, comprising 138 Chiefs and 348 Assistant Chiefs, and an infinite and highly fluctuating number of illicit brew traders (County Commissioner's Office, Kakamega, and Uasin Gishu Counties, 2019).

The sample size of the NGAOs was arrived at by calculating 30% of both the Chiefs and Assistant Chiefs respectively. These are the officers tasked by the Ministry of Interior with the responsibility of implementing alcohol control policies in Kenya, illicit brew inclusive. The 30% was chosen as advised by Mugenda and Mugenda (2003) that 10-30% of the total target population is adequate for a descriptive study. Therefore, 145 (41 Chiefs and 104 Assistant Chiefs) were equally distributed among the 18 sub-counties in both Uasin Gishu and Kakamega counties, with 2 chiefs and 6 Assistant Chiefs per sub-county respectively.

A sample of 30% of Chiefs (138) and Assistant

chiefs (348) was targeted. And eventually, 124 questionnaires (86.1% response rate of the NGAOs) were correctly filled and utilized in the data analysis. The illicit brew traders on the other hand did not have a definitely recorded population. Two illicit brew traders per sub-county were targeted, and complete interview schedules were utilized in data analysis. The researcher successfully interviewed 30 illicit brew traders using snowball sampling, 15 from each county. The study was carried out in Kakamega and Uasin-Gishu counties in Western Kenya. Collected data were analyzed using descriptive statistics and presented thematically.

Results

The outcome of the study revealed scores of motivations that lead to illicit brew production, sale, distribution, and consumption as discussed below:

Bribery

The NGAOs; 104 (83.5%), and 21(70%) of the illicit brew traders pointed out that the ease to bribe implementers of Alcohol control policy, particularly illicit brews in the counties was a major factor motivating illicit brew traders to produce, distribute, and sell the liquor. Bribery applied to the National Government Administrative Officers (NGAOs), the national police officers, and the county government security team, all of them being important stakeholders in implementing alcohol control policies.

Illicit brew traders 19(90%), reported that they bribed the police officers, to avoid arrest, destruction of brewing equipment, and to acquire protection from the same officers in future raids on their business premises which can either be at home, in the bushes, plantations or along river banks. Moreover, 11(8.9%) of the NGAOs agreed that bribery, otherwise known as *'10 percent'* or *'returns'* is offered by traders to police officers who in turn, benefit from the proceeds of the illicit alcohol trade. The traders could offer as low as Ksh. 50 up to Ksh. 10000, depending on the authority involved. The county government security officers were reported to take the highest bribes, followed by the Chiefs and least, the police officers. However, the police officers were said to collect bribes as many times as possible from traders.

Previous studies have yielded similar results, for instance, Gitau and Kinyukia (2016) reported that police officers received bribes from informal bars from customers ranging from Ksh. 50-200, while Lutta (2016) found that bar owners in Nairobi county paid police officers Ksh. 500-1500 as bribes, from those who lacked operating licenses or operated beyond the formal stipulated hours. Additionally, extortions of Ksh. 2000 per week applied to long-term bar operators, referred to as *'operational fee'* to allow for the smooth running of their enterprise and tame any legal disturbances. Moreover, Oruta (2017) asserted that the police officers were the beneficiaries of illicit trade, fleecing money from local gullible brewers and traders for their benefit. This eventually hails a report by Transparency International (2013) rating the Kenyan public sector in the corruption index position 137 out of 177 in the globe, asserting that corruption is rampant.

Poverty

The majority 102(82.2%) of the Chiefs and Assistant Chiefs reported that poverty was the driving force behind the illicit brew trade in their counties. This was supported by the responses of the majority, 26(86.6%) of the illicit brew traders that they engaged in the illegal enterprise to raise school fees for their children, dependent siblings, or grandchildren. Their desire to see them through school stemmed from their level of education where most 22(73.4%) reported having only managed to get basic primary level education. Additionally, the traders reported their economic struggles from meager earnings, joblessness, widowhood, separation, and single parenting, predisposing them to opt for the trade, a cheaper alternative for survival.

It was however evident that some traders had managed to use the output of illicit brew trade, particularly those with large-scale production and distribution to see their children through school while others have had theirs graduate from universities. Moreover, the Chiefs 89(71.8%) attributed poverty to high levels of formal

unemployment among the traders, hence resorting to self-employment in artisanal liquors in the counties. The result supports WHO (2019) claims that in Kenya, there is an unemployment rate of 9.31%. This was further reported by Magut (2021) that unemployment pushed 16.7% of the targeted population to resort to brewing, selling, and consumption of Chang'aa among the youth aged 18-35 in Elgeyo-Marakwet County.

Additionally, 21(70%) of the illicit brew traders divulged that illicit brew production, sale, and distribution were meant to cater for food, since, some of them lived in urban slums with inadequate land to grow crops. Some 11(36.6%) brewed illicit alcohol to clothe their families, 11(36.6%) to raise funds for medical supplies, a circumstantial engagement on a need basis. Poverty, therefore, played a critical role in motivating the production of illicit alcohol to raise basic medical funds that could have otherwise been covered if they had enough cash to enroll in medical insurance policies.

Similarly, 2(6.6%) of the traders were motivated to brew and sell illicit liquor as an alternative to borrowing from other members of their families, friends, and neighbors. Engaging in the trade served as a means of achieving some level of economic independence. Another group 5(16.6%) reported that raising funds to pay house rent was their main motive, while 4(13.3%) aimed at raising funds to purchase land, 2(6.6%), to build a home and move out of rented houses through merry go rounds created by a group of fellow traders, 2(6.6%) reported that their husbands were jobless and their motivation was to raise funds to cater for basic necessities.

Mwangi (2018) while analyzing the influence of social media on the consumption of illicit alcohol revealed that artisanal liquor brewing, sale, and consumption were common in low-income settings such as slums and economically disadvantaged rural homes. Poverty was therefore considered a causative factor resorted to by unemployed individuals who also lacked any form of recreational activity (Muchiri, 2014).

Laxity by authorities

Most of the NGAOs 89(71.8%) agreed that the members of the authority responsible for implementing the control of illicit liquor were lenient and in some instances, did not exert any effort in eradicating the trade. The officers, from the national police, the county government, and the Chiefs and Assistant chiefs knew about the trade in their jurisdictions and only acted upon it when there was national pressure from executive directives and mainstream media on the impact of illicit alcohol.

The views of the bureaucrats toward the illegal liquor motivated individuals to continue with the enterprise. Some implementing officers consumed the very alcohol they were meant to control and thus, the traders took advantage of their indulgence by engaging in brewing and selling. Moreover, the brews played key significant roles in traditional practices such as sealing of marriages, receiving of dowry, child naming, weddings, initiation, and funeral ceremonies. The Chiefs being part of the local culture were, therefore, reluctant to exert the much-needed effort to eradicate illicit alcohol in their local communities, thus, leading to continued production, sale, and consumption of the liquor.

Amuya & Onantwa (2017) while analyzing the relationship between devolution and illicit brew prohibition in Teso sub-county, reported a similar outcome, pointing out that devolution of alcohol control function acted as a barrier to the implementation of the Alcoholic Drinks Control Act 2010, particularly among the NGAOs, hence relaxing the prohibition effort on unrecorded alcohol. Moreover, the trade flourished due to the lack of political will by local politicians to control the trade.

Market demand

For a business to be sustainable, there have to be customers, a situation applicable to the illicit brew trade. The majority 111(89.5%) of the NGAOs divulged that the demand for traditional booze, particularly *Chang'aa and busaa* was a motivating factor that drove individuals with the skill to produce the artisanal alcohol. A

readily available market comes with the need for production, sale, and distribution to meet the demand, leading to a sprawl of an underground trade. Coupled with the high prices of industrial regulated beer, the economically disadvantaged individuals resorted to illicit brews to quench their thirst, particularly Chang'aa, because of its potency.

The traders who had a history of brewing and distilling traditional alcohol could be approached by customers to brew and sell to them. The individuals, owing to their economic status and the desire to meet their basic needs, opt for the trade to earn money in return, making the entire process a cycle that individuals quit when the demand lowers and pick up the trade when demand is high. Because illicit brewing and distillation do not need any kind of formal skill, requires little capital, are cheap, and are easily intoxicating, traders opted for them to capitalize on demand.

Business opportunity

The traders viewed their enterprise as any other business opportunity capable of gaining profits as reported by 74(61.2%) of the Administrators, a response that was supported by all the illicit brew traders. They divulged that it is a profitable venture that required no formal skill, standardization, and payment of taxes and levies, thus a cheaper and easier means of earning quick money.

Moreover, illicit brews are readily available, and an alternative to expensive formal industrial alcohol among poor rural folks, who are struggling with poverty, and unemployment among other economic constraints. Additionally, the traditional liquor is more potent, particularly Chang'aa, thus making it highly sought by many local consumers to achieve fast intoxication. Furthermore, it is produced using locally available materials such as sugar, cereals, as well as molasses and can be brewed in any environment, with no added costs from industrial chemicals, subsequently bringing higher returns to brewers.

Previous research affirms this motivation, for instance, Githui's (2011) study on drinking culture noted that the ease in illicit brew production, use of cheap and readily available raw material, and lack of formal standardization and payment of tariffs and revenue is a catalyst to producing, distributing and selling illicit liquor. Andrew (2015) on the other hand noted that traders capitalize on illicit alcohol to amass quick profit.

Consumption of the brew by implementers

The illicit brew traders and 74(59.7%) of the NGAOs reported that some officers tasked with the implementation of alcohol control policy, illicit brews in particular are also consumers of the outlawed liquor, leading to a conflict of interest. Their consumption and the traders' knowledge of the same put the implementers in dilemma, and are sometimes offered the brew in return for protection from future raids and arrests. According to Gitau (2017), some police officers, village elders, Chiefs, and Assistant chiefs consume busaa and Chang'aa, hence, acting as a motivating factor.

Influence from the implementer's traditions regarding local artisanal liquor leads to skewed control of the brews, and poor conduct of the illicit brew policy implementation (Oruta, 2021). The acceptability of the liquor in their families and communities coupled with the individual choice to consume, and further exacerbated by addiction leaves implementation gaps exploited by ready entrepreneurs.

Ability to partake in other criminal activities

Illicit brew trade was used as a disguise to engage in other illegitimate activities, as reported by 6(4.8%) of the NGAOs. Other drugs such as bhang, local tobacco, and chemicals used to adulterate artisanal liquor and find a market for stolen goods took place in the dens. They were also used as meeting places to plan crimes such as robbery and theft, as well as for conducting prostitution. This was also reported in the USA by Tobiassen (2014), who noted that the illicit liquor trade was run by criminal gangs as a source of finances for their operations.

Ease to Hide

The ease to hide illicit brew trade was reported by 26(86.7%) of the illicit brew traders. They engaged in the trade because they could hide it away from

authorities. Some 8(30.8%) are reported to dig their liquor underground either in their houses, in plantations, in forests, or along the riverbanks, some had their breweries in either maize or sugarcane plantations 7(26.9%) or rented houses far away from home 2(7.7%).

The brews were also hidden in unsuspecting places such as toilets and bathrooms. Others defecated openly in the areas that their brews were dug into, to create a disgusting environment that illicit brew control authorities will not venture into, hence avoiding arrests and destruction of their brewing and storing equipment. The ease of hiding away the liquor was reported by Okoth (2016) in Laikipia County, where traders would hide their liquor up in the trees.

The NGAOs 104(84.4%) on the other hand reported that the ease to hide was a likely motive behind the growth and operation of the informal liquor in their jurisdictions. Other reasons provided by the administrators were lenient court penalties 5(5%), that were not adverse to deter future engagement in the trade, protection by implementers of the policy 11(8.9%) inclusive of some police officers and NGAOs, and lack of adequate funds to legalize their artisanal alcohol 87(71.9%).

Mwangi (2018) had previously reported that illicit brew entrepreneurs were too sophisticated at times, and to conceal their trade, used *'Scouts'* whose role was to not only offer their labor at the distilleries, in distribution and sale but also watched out for police officers and NGAOs in exchange of a 'daily wage'. Moreover, the large-scale distillers were reported to be well-connected business people, with ready markets for their products, majorly for distribution to retailers.

Conclusion

The control of illicit brew trade in Kakamega and Uasin-Gishu Counties is hampered by economic and behavioral factors affecting the producers, distributors, sellers, and consumers of illicit alcohol. It is equally affected by the cultural beliefs of local bureaucrats and the moral decadence of some street-level bureaucrats responsible for the control of the trade. It is therefore credible to conclude that; formulating strategies that empower traders to establish legal and ethical business ventures, can reduce the drive to engage in illicit brew trade. This will also go a long way in improving the production and the environment in which these brews are manufactured. Additionally, such transparency will not only increase revenue collection by the government agencies but also protect artisanal brewers from exploitation by rogue police and other government officers as well as protect consumer rights.

Recommendations

To address the policy problem at hand, the study recommended the following

i. The control of Alcohol and Licensing of alcohol at the sub-county level be reverted back to the National Government Administrative officers, to avoid local political influence working against control efforts by the NGAOs.

ii. The NGAOs identify economically vulnerable households and forward the same for recommendation to government welfare and empowerment services, such as entrepreneurial skills, cash transfers, and government bursaries among others. As street-level bureaucrats, the NGAOs have the knowledge and understand their subjects better,

iii. A rehabilitation campaign by the NGAOs and in collaboration with other relevant bodies such as NGOs, religious institutions, local professionals, and the Health sector be carried out to not only offer civic education but also rehabilitation services to both alcohol addicts serving in authority and citizen in local jurisdictions.

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The Culture of Drug Abuse and Substance Use as a determinant of Health Outcomes among Students in Kenya public Universities

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Abstract

The culture of drug abuse and substance use among university students has become a global concern, considering the continued consumption of these illegal drugs and substances. Despite this understanding and worrying state of affairs, limited evidence on the health outcomes and how to curb the menace. It is on this basis that our paper applies an emic perspective in understanding the trends, dynamics and socio-health outcomes of drug abuse and substance use among university students. It is on this basis that our paper applies an emic perspective in understanding the trends, dynamics and socio-health outcomes of drug abuse and substance use among university students. The study employed a descriptive research design and was anchored on the social comparison theory. Data was collected through KoBo Collect tool and administered to 250 second year and third year university students. Ten (10) interviews were conducted with university students' leaders. The data was analysed qualitatively and quantitatively. The study found out that drug and substance use culture at university is a norm to students. From the multiple responses, the respondents indicated that their parents ensured that they had the resources they needed to study and live comfortably at 84.6% and 78.9% respectively, but without putting into consideration effective strategies for monitoring their children's activities while on campus. Most (76.3%) of the respondents indicated that drug abuse had effects to individuals, 64.0% to the society and (44.7%). The study recommends the need to adopt interventions aimed at promoting student's well-being in the university setting, while protecting them from accessing illegal drugs and substances that are harmful to their health and wellbeing. It is also paramount to involve local structures, such as the Nyumba Kumi initiative to track the sources of illegal drugs and substances to students on campus and in the neighbourhoods, to ensure their prevention and control.

Keywords: *Drug culture, behaviour modification, University students, substance use, Health outcomes, Kenya*

Introduction

The World Drug Report 2017 revealed that an estimated 28 million years of 'healthy' life was lost worldwide in 2015 as a result of premature deaths and disability caused by drug abuse and substance use (WDR, 2017). Studies and reports from the World Health Organization and the United Nations indicate that worldwide, 5% of all deaths of young people, including university students aged between 15 and 29 are attributable to alcohol use (WHO, 2018). Notably, over 150 million young people use tobacco, and half of the young users are likely to die prematurely as a result of their indulgence on the same (GBD, 2021; WHO, 2018). In 2015, about a quarter of a billion people used drugs, of which, around 29.5 million (0.6%) of the global adult population were engaged in problematic use and suffered from drug-use disorders, including dependence.

In the 2030 Agenda for Sustainable Development, target 3.5 commits Governments to strengthen the prevention and treatment of substance abuse, and a range of other targets are

of particular relevance to drug control, particularly target 3.3 on ending the AIDS epidemic and combating hepatitis, target 3.4 on prevention and treatment of non-communicable diseases and promotion of mental health, target 3.8 on universal health coverage and target 3 on access to essential medicines (MOH, 2017).

Wanzala, Ngugi, and Nyamogoba (2021) reveal that mental disorders resulting from drug abuse are affecting young adults- at a very crucial time in their lives, thereby adversely destroying their future. Ironically, it is interesting that, whereas universities are perceived to play an enormous role in building the social character and shaping the minds of students, the same universities seem to provide an enabling environment for students to get exposed to the drug culture and substance use that directly impacts on behaviour change.

Studies conducted in European countries, such as France on university students reported the prevalence of alcohol and tobacco consumption at 20.1% and 23.2% respectively (Tavolacci et al. 2013). Regarding the South-East Asian Nations, varying prevalence rates of illicit drugs were found to range from 0.2% in Cambodia to 45.7% in Laos (Yi et al. 2017). We notice that the prevalence rates of our study fall within these ranges.

Like universities in other parts of the world, African universities in Nigeria, Uganda, Ethiopia and South Africa have found out that the prevalence of drug abuse and substance use ranges between 27.5% and 62% (Nwanna et al. 2018). The prevalence of substance use among undergraduate students in one university in Nigeria was reported at 27.5% (Johnson et al. 2018). The United Nations Office on Drugs and Crimes (UNODC 2018), report on substance use in Nigeria, puts the overall past-year prevalence at 14.3 million (14.4%). While use of? is reported across all age groups, the highest use was among the 25 to 39-year-olds, where cannabis was the most used substance, with an average initiation age of 19 years; with amphetamines and ecstasy use among young people also reported.

Prescription opioids, mostly tramadol, morphine, and codeine, were also in high use; others included alcohol and tobacco use. Alcohol flows quite freely on college campuses, but drugs (both recreational and prescription, both legal and illegal) are exchanged in dorm rooms and classrooms, either as a way to escape from all the stress or to boost academic performance, but without concern for the underlying risk of developing an addiction (UNODC, 2018). Studies in USA universities by Krebs et al. (2007), Muehlen et al. (2017), Lawyer et al. (2010), and Champion et al. (2021) indicate that approximately one in five university women report experiencing some form of sexual assault during their university careers. However, such studies have examined the situational and contextual factors surrounding victimization, contributing to this evidence, but without linking it to the drug culture and substance use in universities. Hence, difficult to interpret regard to university student experiences. Arguably, it is the responsibility of every university to provide a drug and substance-free environment for its students, so as to inspire confidence, academic growth, and wellbeing. However, it is noted with concern that university students continue to face insistent gravitation to and difficulties in getting out of the drug culture and substance use (WDR, 2017).

Musyoka and Mathai (2020) found out that an increase in alcohol and substance use among university students is a global public health concern, which is associated with the risk of substance use disorders to the individuals involved and public health problems for their families and society at large. Where was the study carried out? In this context, pressures for self and societal achievement have motivated a significant number of university students to indulge in substance use and drug abuse, thereby ruining their health and future lives. For instance, as noted by Champion et al. (2021), individuals who report greater severity of recent alcohol consumption and marijuana use are more likely to be victims of a sexual assault.

From the foregoing discussion, despite the fact that the culture of drug abuse and substance use among university students causes immense academic, health, and social consequences not much has been documented on the same (UNODC, 2018), especially in Kenya and

regions such as the rift valley, that are seen as less vulnerable to drug abuse and substance use due to the Kenya-Uganda high transiting goo people and goods within East African countries. According to Weldon (2013), many researchers have concentrated their studies in regions such as coastal Kenya which is perceived as a major transit hub with easy access to illicit drugs.

In this paper, we aver that life at the university is supposed to be an era of self-discovery, lifelong friendships, independence, and enriching experiences in preparation for what the outside world has to offer. Unfortunately, this is negatively impacted in the long run because the culture of drug abuse and substance abuse leads to poor health outcomes hence, the goal of living a healthy life is never achieved. All the aforesaid factors have the potential to create a perfect storm of anxiety and depression and temptation. Available scientific evidence indicates that individuals with substance use disorders often access the health care system for reasons other than their substance use disorder (SUDs) (Substance Abuse and Mental Health Services Administration, 2016).

In Kenya, Atwoli et al. (2011) and Ndegwa et al. (2017) revealed a higher prevalence of substance use in universities, ranging from 20% to 68%. Tumuti et al. (2014) also found out that university students are famous for abusing alcohol, cannabis and tobacco. In this paper, the researchers apply an emic perspective in understanding the trends and dynamics of drug abuse and substance use in Kenya universities. Proponents of the emic viewpoint posit that a phenomenon should be studied from within the individual's own cultural context. In his opinion, Pike (1954) asserted that the main task of the researcher is to reconstruct the unexpressed emic knowledge that guides human behavior. The anthropological dogma identified the 'distinctively human capacity for expectations, thinking, imagining, intentions and ideas' as the key to explaining human behavior.

Schensul and LeCompte (2013) state that the emic helps researchers to understand local realities. The researchers argue that it is highly likely that drug abuse and substance use negatively affects students' behavior and academic life. The main question is: to what extend are students affected in terms of attendance, academic performance, sexual practices, crime involvement, mental health and relationships with others?In reference to the social comparison theory of 1954, the social psychologist, Leon Festinger posits that people (in this case university students) determine their self-worth by comparing themselves to others. The result of this is that various factors, such as physical attractiveness, wealth, intelligence, happiness, among others, are constantly evaluated on the basis of how others are doing. The achievement culture points that adult have the maturity and experience to understand the flaws in social comparison, even if they are prone to it. However, university students, on the other hand, do not yet have fully mature brains. In the second and third year of their studies in higher institutions of learning, many students are confronted with challenges that test their cognition, emotions and social skills, in terms of regulating or pursuing certain behaviours. In this study, we are interested with how university students can regulate their behaviour on campus to avoid indulging themselves in drug abuse and substance use, while at the same time coping with the university environment. Most of the paragraphs are too short, mostly two (2) sentences, meaning ideas are limited.

Statement of the Problem

The culture of drug abuse and substance use among university students has become a gigantic global concern, where substances such as alcohol, tobacco, prescription drugs, cannabis and other psychoactive substances are consumed. Yet, a quick search on sites of publications with wide a readership, including University World News, International Higher Education and Inside Higher Education articles, among others, generate limited evidence on the health outcomes. This is despite the fact that the academic, health and social consequences of the culture of drug abuse and substance use among university students are immense. Many students get their first real experiences with drug abuse and substance use when they begin college in the name of "orientation bash".

Borrowing from Becker (1963), drug abuse and use among students are cultural context and analyzed

not in terms of deviant behaviour, resistance (Willis 1978), or development psychology (Moore, 2002), but as modem symbolically significant consumption as a way to create and maintain social categories and distinctions (Bourdieu, 1984; Thornton, 1995). The freedom and ease of experimentation in the university context can both be exciting and scary. There are plenty of myths and stereotypes surrounding drug abuse and substance use culture. In this paper, 'context' is the objective milieu where drug use among students takes place, including elements such as social and cultural codes that set the ways of behaving within that environment. In spite of the recent increase in the use of illegal drugs and substances in university contexts, the practice still remains a fairly marginal phenomenon in research and intervention.

In Kenya, drug and substance use is increasing and especially among the youth. Current statistics indicate that more than half of drug users are aged 10-19 years and especially those in universities. Most studies done in the country indicate that the commonly used drugs are nicotine, alcohol and cannabis. Kenya's strategic position in the East African region and being a regional economic hub and an economic hub in the region, there has been an upsurge of international narcotic drug trafficking leading to increased injecting drug users (MoH, 2017). It is on this basis that this paper sought to explore the health outcomes of the culture of drug abuse and substance use among students in universities.

Methodology

The paper used a mixed-method approach and adopted a descriptive research design. The target population all second-year students of Kisii university in the Eldoret campus. In this respect, second-year and third year students were selected due to their longer orientation and encounters in the university environment to understand their level of involvement to drug culture and substance use. Data was collected using the Google Phone App tool and questionnaires administered to 250 second-year and third-year Kisii University, Eldoret Campus students, including six (6) interviews with key informants involving university students' leaders in relation to the topic under study.

A stratified random sampling procedure was used to group students basing on of their faculties (Education, business, and Social Sciences). Further, the researchers used simple random sampling procedure to pick the study sample from all the three schools on the campus. Further, the purposive sampling technique was used to choose an administrative representative from the university that helped the researcher with qualitative data in an in-depth interview session. The key informant was selected on the basis of in-depth knowledge on drug and substance abuse, and years of experience in counselling services within and outside university. Quantitative data was analysed by the use of SPSS and presented in form of frequencies and percentages whereas qualitative data was analysed descriptively and presented in the of form of narratives.

Findings and Results

Effects of Drug Abuse and Substance Use

Respondents for the study were requested to state whether they had access to the illegal drugs in Kenya and the reasons why they had access. This is shown in Table 1 below:

Table 1: Illegal Drug Access

Description	Category	Frequency	Percent
Access to illegal drugs in Kenya	Yes	119	52.2
	No	109	47.8
	Total	**228**	**100.0**
Reasons for access to drugs	Freedom in the institution	105	88.2
	Availability of the drugs	96	80.7
	Lots of money/ finances from parents	93	78.2
	Students' age	86	72.3
	Easy finances from part-time jobs	53	44.5

As shown in table 1, majority, (52.2%) of the respondents use and had access to the legal drugs in Kenya, while (47.8%) did not have any access. Accordingly, respondents were asked to state the reasons why they had access to the illegal drugs. From the multiple responses,' the majority (88.2%) of the respondents revealed that they had access to drugs because of freedom in the institution, 80.7% indicated availability of the illegal drugs, (78.2%) got lots of finances from their parents, (72.3%) was attributed to their age, (44.5%) got easy finances from part-time jobs. During the interviews, it was however, highlighted that some of the students accessed illegal drugs from their peers inside and outside campus.

It was also shared that perceived descriptive drug use norms and substance consumption was moderated by level of identification with the normative referent, such as classmates and age groups among others. These findings are supported by Diana et al. (2012), who argue that moderators such as social identity, social anxiety, substance use motives and expectancies influence the rate of usage of prohibited drugs and substances among university students.

Table 2: Implementation of Frameworks

Description	Category	Frequency	Percent
Whether there was framework in place that controls the abuse of drugs among students	Yes	178	78.1
	No	50	21.9
	Total	**228**	**100.0**
What the institutions had in place to curb drug abuse	Departments and offices in place	140	78.7
	Organized seminars	110	61.8
	Organized forums	104	58.4
	Organized walks	58	32.6

Consequently, as shown in table 2 above, respondents were asked to confirm whether there were rules in the institution, and if yes, whether such rules provided an adequate framework for curbing drug abuse and substance use. All (100.0%) respondents in this study indicated that rules existed in the institution in question. However, most (78.1%) of the respondents revealed that despite the rules, the aforesaid institutions of higher

learning did not have an effective framework in place to control the abuse of drugs and substance use among the students.

On what the institutions had in place to curb drug abuse, from the multiple responses, the majority (78.7%) of the respondents indicated that departments and offices were in place that served to educate students on the effects of drug abuse. In this context, departments organized for seminars (61.8%), forums (58.4%) and walks (32.6%), that were aimed at creating awareness among students on the types of drugs abused and their effects on their behaviour and academic life.

Table 3: Age and where drugs are obtained

Description	Category	Frequency	Percent
Age of the respondents	Below 18 years	3	1.3
	18-35 years	197	86.4
	35 years and above	28	12.3
	Total	**228**	**100.0**
On access to drugs and where legal drugs are obtained from	Both legal and illegal drugs are readily available in centres of entertainment, both within and outside the institutions, from students who purchase them from suppliers	101	84.9
	and sell them to their colleagues on campus.	77	64.7

Analysis in table 3 above revealed that most (86.4%) of the respondents revealed that they were 18-35 years old, (12.3%) 35 years and above, and (1.3%) below 18 years. What is more, after attaining the age of eighteen, one is assumed to have become an adult and is thus trusted to make the right decisions on the issues he or she encounters in his/her life. Of those who had access to the illegal drugs, it was revealed from the multiple responses that illegal drugs are readily available in centers of entertainment both within and outside the institutions, at (84.9%) and from students who purchase them from suppliers and sell them to their colleagues in the institutions of higher learning at (64.7%).

Key informant interviews revealed that some students engaged in drug abuse due to influences from their colleagues, who had used them before. It was also revealed that the usage of these drugs and substances is secretive and only known to the users and inductees. This also provides the opportunity to experiment and achieve the utmost perceived positive outcome by the users. As presented by the social comparison theory, these individuals compare themselves with the so-called 'high achievers,' hence adopting the same behavior. As explained by Festinger (1954), students engage in this comparison process as a way of establishing a benchmark by which they can make accurate evaluations of themselves and learn how to define their self-concept. Such an evaluation can either increase or lower self-esteem depending on the outcome.

From the foregoing, it became evident that the social comparison process involves a person discovering his/her effectiveness, capacity, and self-esteem by evaluating his/her own attitudes, abilities, and beliefs through comparison with others. In line with scholars, such as Wang and Veugelers (2008), self-esteem is a significant element of young peoples' socio-health and development, since, according to Zamboanga et al. (2009), it is the most reliable predictor of the likelihood and extent of substance abuse among the young people in universities. Further, the researchers were interested in understanding parents' responsibility concerning students' involvement in the drug culture and substance use.

Table 4: Parent follow-up and responsibility

Description	Category	Frequency	Percent
Whether parents do a follow up on what students do on campus	Yes	192	84.2
	No	36	15.8
	Total	**228**	**100.0**
Parent's responsibility	parents ensured their children had the resources they needed to study	193	84.6
	parents ensured their children lived comfortably while on campus	180	78.9

In table 4 above, the respondents were asked to indicate whether their parents did a follow-up on the activities that they engaged themselves in, while on campus. The majority (84.2%) of the respondents indicated that their parents did not follow up on the activities that they engaged in while on campus. From their observations, the respondents further indicated that their parents ensured they had the resources they needed to study and live comfortably at 84.6% and 78.9%, respectively. This implies that what parents did, was to ensure that their children had the resources they needed to study and live comfortably on campus, but without following up on how the resources could be misused by such children/ students in accessing prohibited drugs and substances.

Table 5: Drug effect categories

Description	Category	Frequency	Percent
Categories effects of drug abuse among the youth	Effect to individual	174	76.3
	Effect to the society	146	64.0
	Effect to the nations	102	44.7
Short term effect of drug abuse	Truancy	163	71.5
	Hallucinations	127	55.7
	Intoxication	119	52.2
	Increased or loss of appetite	97	42.5
Long term effect of drug abuse	Loss of life	186	81.6
	Cancer diseases	149	65.4
	Liver cirrhosis	143	62.7

In table 5, the respondents were asked to state the categories of the effects of drug abuse among the youth. From the multiple responses, most (76.3%) of the respondents indicated that drug abuse had effects on the individual, (64.0%) on the society, and (44.7%) beyond the country. On the other hand, from the multiple responses, most (71.5%) of the respondents revealed that drug abuse had short-term effects, like truancy (55.7%), hallucinations (52.2%), intoxication and increased or loss of appetite (42.5%). Moreover, the majority (81.6%) of the respondents revealed that drug abuse caused long term effects, such as loss of life (65.4%), cancer diseases and 62.7% liver cirrhosis.

Table 6: Effect drug abuse to individual

Description	Category	Frequency	Percent
Effects of depressants like alcohol	Intoxication	152	66.7
	Lack of appetite	128	56.1
	Addiction	128	56.1
	Liver cirrhosis	110	48.2
Effects of narcotics such as tobacco	Addiction	175	76.8
	Various types of cancer such as cancer of the throat and lungs	156	68.4
	Depressed appetite	145	63.6
Effects of hallucinogens such as cannabis sativa	Increased appetite	175	76.8
	Addiction	159	69.7
	Mental disorders	159	69.7

Table 6 above from the multiple responses revealed that the majority (66.7%) of the respondents revealed that depressants, such as alcohol are known to cause individual effects like intoxication (56.1%), and lack of appetite (56.1%), addiction and liver cirrhosis (48.2%). Besides, most (76.8%) of the respondents revealed that narcotics, such as tobacco are known to cause addiction, 68.4% various types of cancer, such as cancer of the throat and lungs, and (63.6%) depressed appetite. Additionally, most (76.8%) of the respondents revealed that hallucinogens, such as cannabis Sativa are associated with increased appetite, (69.7%), addiction and (69.7%) mental disorders.

Table 7: Effect of drug abuse on society and nation

Category	Category	Frequency	Percent
Effects of drug abuse to the society	-Theft to access finances for buying drugs	177	77.6
	-Harm to the society, as they get involved in violent activities	158	69.3
	-Terðmination of studies, thus loss of funds invested by parents	151	66.2
	-Acquiring of sexually transmitted diseases that put a burden on their parents and guardians to provide finances required to get proper medical attention	150	65.8
	-Unplanned pregnancies that resulted to death and loss of loved ones to relatives in the case of poorly conducted abortions	149	65.4
	-Loss of loved ones by their family members because of death from diseases like HIV	127	55.7
Effects of drug abuse to the nation	-The nation lost its youth who could otherwise be engaged in economic development of the country	200	87.7
	There were increases in crime activities since the drug abusers engage in theft and violence	166	72.8
	-The young in society lacked role models in whose footsteps they could follow.	156	68.4
	-Loss of potential leaders of the future to drug abuse	153	67.1

Analysis in table 7 on the effects of drug abuse and substance use on the society, most (77.6%) of the respondents stated that it resulted in theft, as they needed finances to acquire drugs; (69.3%) harms the society, as they got involved in violent activities; 66.2% termination of studies, thus loss of funds invested by parents; 65.8% acquiring of sexually transmitted diseases that put a burden on their parents and guardians to provide finances required to get proper medical attention; 65.4% unplanned pregnancies that resulted to death and loss of loved ones to relatives in the case of poorly conducted abortions; 55.7% loss of loved ones by their family members because of death from diseases, such as HIV or involvement in the criminal activities such as theft.

On the effects of drug abuse on the nation, the majority (87.7%), of the respondents stated that: The nation lost its youth who could otherwise be engaged in the economic development of the country; 72.8% reported an increase in criminal activities, considering that drug abusers engage in theft and violence; 68.4% of the young people lacked role models whose footsteps they could follow; and 67.1% loss of potential leaders of the future to drug abuse and substance use.

Table 8: Drug Culture and Substance Use * Socio-health outcomes of drug abuse Crosstabulation

Trends Dynamics			Socio-health outcomes of drug abuse				Total
			socio-health	Drug Culture and Substance			
Drug Culture and Sub-stance Use	Trends	Count	15	12	9	27	63
		% within Drug Culture and Substance Use	23.8%	19.0%	14.3%	42.9%	100.0%
	Dynamics	Count	8	9	9	19	45
		% within Drug Culture and Substance Use	17.8%	20.0%	20.0%	42.2%	100.0%
	So-cio-health	Count	8	8	49	11	76
		% within Drug Culture and Substance Use	10.5%	10.5%	64.5%	14.5%	100.0%
	Drug Culture and Substance	Count	7	4	10	23	44
		% within Drug Culture and Substance Use	15.9%	9.1%	22.7%	52.3%	100.0%
Total		Count	38	33	77	80	228
% within Drug Culture and Substance Use		16.7%	14.5%	33.8%	35.1%	100.0%	

Analysis in table 8 on cross-tabulation of results showed that the *Trends Count* % within Drug Culture and Substance Use was 15(23.8%). This implied that drug users also tend to be more chronic to users associated with psychiatric trends and medical co-morbidities, and are either stigmatized or come from marginalized segments of society. Many studies have shown a strong association between poverty, social exclusion, and problem drug use. *Dynamics Count* % within Drug Culture and Substance Use indicated 8 (17.8%) on socio-health outcomes.

Table 9: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	54.312[a]	9	.000
Likelihood Ratio	54.547	9	.000
Linear-by-Linear Association	1.984	1	.159
N of Valid Cases	228		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.37.			

Source: (Researchers, 2021)

Table 9 above presents the results of the "Pearson Chi-Square" row which shows that

χ (1) = 54.312, p = .000. This tells us that there is a statistically significant association between drug culture and substance use and socio-health outcomes of drug abuse. This does not mean that students in different countries respond the same way drug culture and substance use affects them.

The study is supported by Ghulam (2017), who noted that if the p-value is less than 5% or equal to the significance level, then it is indicative that there is sufficient evidence to conclude on the observed distribution not to be the same as it is expected. Therefore, it can be concluded that there is a significant relationship between the categorical variables on drug culture and substance use and socio-health outcomes of drug abuse. Substance use disorders are associated with numerous medical, psychiatric, psychological, spiritual, economic, social, family, and legal problems, creating a significant burden for affected individuals, their families, and society. This prompted the researchers to examine the effects of substance use disorders on the family as presented in table 10.

Table 10: Effects of Substance Use Disorders among university students

Effects of Substance Use Disorders	Frequency	Percent
Emotional burden-anger, frustration, anxiety, fear, worry, depression, shame and guilt or embarrassment.	57	25.0
Economic burden	48	21.1
Relationship distress or dissatisfaction	75	32.9
Family instability	42	18.4
Others	6	2.6
Total	228	100.0

Table 10 above showed that distress or dissatisfaction was the main effect of substance use disorders among students. This is supported by the 75(32.9%), followed by emotional burden, anger, frustration, anxiety, fear, worry, depression, shame and guilt, or embarrassment, which had a 57(25.0%), economic burden, (money spent on substances), or money problems associated with the loss of jobs or reliance on public assistance 48(21.1%), Family instability resulted to abuse or violence, or family breakup due to separation, and divorce 42(18.4%). From the results, the young people of parents with substance use disorders (SUDs) are at increased risk for abuse or neglect, physical problems, poor behavioral or impulse control, poor emotional regulation, conduct oppositional disorders and poorer academic performance. Relationship dissatisfaction is also associated with emotional distress among university students.

Conclusion

This study shows that university students' behavior toward drug abuse and substance use has negative socio-health effects on the academic life of a student. From the multiple responses, most (76.3%) of the respondents indicated that drug abuse had effects on individuals, (64.0%) on the society, and (44.7%) beyond the country. Additionally, most (76.8%) of the respondents revealed that hallucinogens, such as cannabis sativa are associated with increased appetite,

(69.7%) addiction and (69.7%) mental disorders. This implied that drug users also tend to be more chronic to users associated with psychiatric trends and medical co-morbidities, and are either stigmatized or come from marginalized segments of society.

It can, therefore, be concluded that there is a significant relationship between the categorical variables on drug culture and substance use and socio-health outcomes of drug abuse. Substance use disorders are associated with numerous medical, psychiatric, psychological, spiritual, economic, social, family, and legal problems, creating a significant burden for affected individuals, their families, and society. It was evident from the findings that young people of parents with SUDs are at increased risk of abuse or neglect, physical problems, poor behavioral or impulse control, poor emotional regulation, and poorer academic performance.

Recommendations

The researchers noted that drug abuse and substance use culture have various negative effects on the socio-health of the students on campus. These include poor academic performance, truancy, adoption of psychological disorders, and unacceptable sexual behaviors. The study recommends that there is a need for adopting interventions aimed at promoting students' well-being in the university setting, while at the same time protecting them from accessing illegal drugs and substances that are harmful to their health and wellbeing. It is also paramount to involve local structures, such as the Nyumba Kumi initiative to track the sources of illegal drugs and substances to students in the neighbourhood and on campus for effective prevention. Recommendations should flow from the conclusions and based on the specific objectives.

Limitation/Future Direction of Research

Given that the participants in the present study were all university students, it is not clear that the results would generalize to those who were not enrolled in the university setting or to individuals who are quite older. We, therefore, recommend that future research could determine whether the culture of drug and behavior medication of individuals involved in drug abuse and substance use outside the university have similar socio-health outcomes or not with reference to social comparison theory.

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Policy Brief on The Status of Alcohol And Drug Abuse Control in Kenya for the Period Between 1st January To 30th June 2020

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Introduction

Alcohol and drug abuse has been recognized as a major public health problem globally. In Kenya, statistics show that 18.2% (4,913,254) of Kenyans aged 15 – 65 years are currently using at least one drug or substance of abuse. Alcohol continues to be the most widely used drug with a current usage of 12.2% (3,293,495). Statistics also show that 10.4% (2,807,569) of Kenyans have alcohol use disorders.

NACADA is mandated to coordinate a national response against alcohol and drug abuse as espoused in the NACADA Act 2012 and the Alcoholic Drink Control Act (ADCA) 2010. The Authority is also a member of the Inter-Agency Taskforce for Control of Potable Spirit and Combat of Illicit Brews as per the Gazette Notice of 10th July 2015. The Taskforce is mandated to inspect all the premises manufacturing alcoholic drinks and recommend measures of control including the closure of production premises.

To facilitate inter-agency collaboration and liaison among lead agencies responsible for alcohol and drugs demand reduction and supply suppression, the Authority convenes the National Technical Committee on Drug Trafficking and Abuse (NTC). The committee membership is drawn from the Ministry of Interior and Coordination of National Government, Directorate of Public Health, Pharmacy and Poisons Board, State Department of Immigration and Registration of Persons, Government Chemist Department, Anti-Narcotics Police Unit, National Police Service, Kenya Prisons Service, Kenya Revenue Authority, Kenya Airports Authority, Kenya Ports Authority, State Law Office, Kenya Bureau of Standards and the National Intelligence Service. The committee facilitates establishing plans of action, strategies and collaboration in the development, implementation and enforcement of laws and policies relating to drug abuse control.

Enforcement

Enforcement data in the reporting period shows that illicit alcohol accounted for the highest seizures followed by cannabis, heroin and lastly cocaine. Data shows that counties in Rift Valley and Nyanza regions accounted for the highest proportion of alcohol seizures during the reporting period. The data also shows an increasing demand for cannabis trafficked from Ethiopia with Isiolo, Marsabit and Garissa counties accounting for 61.2% of the total seizures of cannabis in Kenya during the reporting period.

Illicit Alcohol Control

In the reporting period, data on illicit alcohol seizures shows that a total of 2,052,905 litres of illicit alcohol was seized nationally. County specific data showed that Uasin Gishu accounted for the highest seizures of illicit alcohol (346,496 litres) followed by Nyamira (239,605 litres), Nairobi (192,651 litres), Kakamega (166,061 litres), Elgeyo Marakwet (128,430 litres), Kericho (128,040 litres), Meru (119,164 litres), Homabay (114,264 litres), Nakuru (92,795 litres) and Migori (79,656 litres).

Cannabis Control

Cannabis is the most widely used narcotic drug in Kenya. Cannabis is mostly trafficked by road.

During the reporting period, data on cannabis/ marijuana seizures shows that a total of 5,606 kgs of cannabis were seized nationally. Analysis of county specific data showed that Isiolo accounted for the highest seizures of cannabis/ bhang (2,023 kgs) followed by Marsabit (1,091.30 kgs), Garissa (315.0 kgs), Mombasa (258.46 kgs), Vihiga (205.65 kgs), Migori (195.13 kgs), Kisii (165.75 kgs), Kitui (145.80 kgs), Machakos (108.75 kgs) and Kirinyaga (105.90 kgs). Data also shows that 62,355 rolls, 1,408 plants, 1,848 brooms and 690 stones of cannabis were seized during the reporting period. The counties that reported cultivation were Siaya, Nandi, Meru, Murang'a, Trans Nzoia and Isiolo. Further a total of 1,804 persons were arrested for cannabis possession, cultivation and trafficking where 1,786 were Kenyans while 18 were foreigners. Out of the total arrests, 190 (10.5%) of the cases were finalized.

Heroin Control

During the reporting period, data on heroin seizures shows that a total of 0.5151 kgs of heroin was seized nationally including 551 sachets and 54 pellets. The low seizures of heroin could have been attributed to the Covid 19 containment measures restricting international travels. Further, the law enforcement officers were engaged to enforce the Covid 19 guidelines especially the cessation of movement between counties. In terms of county specific data, Mombasa accounted for the highest seizures of heroin (0.4011 kgs, 257 sachets and 10 pellets) followed by Kilifi (0.074 kgs and 198 sachets), Nairobi (0.04 kgs and 86 sachets), Kwale (44 pellets) and Lamu (10 sachets). A total of 44 persons were arrested of whom 38 were Kenyans and 6 were foreigners. Of the total cases for heroin related offences, only 2 (4.5%) were finalized.

Cocaine Control

During the reporting period, data shows that a total of 0.201 kgs of cocaine was seized in the country including 202 sachets. Data also showed that a total of 22 offenders were arrested of whom 20 were Kenyans and 2 were foreigners. None of the cases was finalized during the reporting period. The seizures for cocaine in Kenya were commonly reported in the Coast region, Nairobi region and Jomo Kenyatta International Airport.

Challenges in the Campaign Against Alcohol and Drug Abuse

The campaign against alcohol and drug abuse in Kenya during the period under review was faced by a number of challenges that include:

Covid-19 related challenges

The country has witnessed unprecedented challenges associated with the Covid-19 pandemic necessitating the Government to issue containment measures leading to closure of learning institutions and ban of public gatherings. These measures disrupted the operations of major Authority's programs targeting learning institutions, communities and operations of treatment and rehabilitation centres.

Access to treatment and rehabilitation services

The demand for treatment and rehabilitation in the country exceeds the available facilities resulting in a large unmet need for these critical services. Currently, there are only four operational public treatment and rehabilitation facilities. These are Mathari Teaching and Referral Hospital, Moi Teaching and Referral Hospital Eldoret, Kenyatta National Hospital and Coast General Hospital. Over 90 percent of the other facilities are privately owned; skewed in urban centres and majorly in Nairobi, Kiambu and Mombasa Counties; and are not affordable to the majority of Kenyans.

Inadequate parental role modelling and parental monitoring

In the recent past, the country has witnessed an emerging trend of underage alcohol and drug abuse. In March 2020, the Government issued Covid-19 containment measures that led to the closure of bars and restaurants. The guidelines provided that alcohol could only be accessed from wines and spirit shops or supermarkets as a takeaway. This resulted to an alarming increase in the incidences of alcohol consumption within the home environment putting children at risk of exposure to negative influence by their parents or guardians. This situation is further complicated

by inadequate parental monitoring, parental relationship and parental attachment thereby exposing children to negative peer influences.

Online alcohol sale

Following the Government's Covid-19 containment measures affecting bars and restaurants, there has been an upsurge of online sale of alcoholic drinks in the country thereby posing serious health and regulatory challenges. Due to the inadequate regulatory regime of the online alcohol sale platforms, there are potential risks of access to underage drinkers given that there are no structures for age verification. Online sale also hinders regulation of standards for alcoholic drinks thereby posing public health and safety concerns to consumers.

Cannabis trafficking

The completion of Isiolo – Marsabit – Moyale road has facilitated easy movement of goods and services in the region. One of the unintended outcomes of the improved infrastructure is an upsurge of cannabis trafficking from Ethiopia. This has been further complicated by the long and porous border between Kenya and Ethiopia.

Prosecution of narcotic drugs related offenders

The fight against drug trafficking has realized significant arrests of narcotic drugs offenders. On the other hand, there has been a challenge of delayed prosecution of narcotic drugs offenders. Other cases have been finalized with very lenient judgements. Delayed prosecution, release of offenders through bail and lenient judgements has led to an increase of repeat offenders.

Recommendations

According to the report, alcohol and cannabis were the most widely seized substances of abuse in Kenya. Therefore, the report recommends the following:

i. The Authority should invest more on media-based and social media programs to target parents, children and the general public with positive parenting skills, provision of safe spaces for children and sensitization on alcohol and drug abuse prevention, control and management;

ii. The Authority should collaborate with the County Governments to accelerate the establishment, refurbishment and equipping of treatment and rehabilitation facilities.

iii. The Authority with the support of the Ministry of Interior and Coordination of National Government and other partners should work towards implementing the Presidential directive to operationalize the Miritini NYS Camp as a model treatment and rehabilitation centre;

iv. The Authority should engage the county governments to ring-fence resources acquired from liquor licensing and invest on establishing more treatment and rehabilitation facilities and implementation of demand reduction programs;

v. The Authority should lobby for the proposed amendments in the Alcoholic Drinks Control (Amendment) Bill 2017 for regulation of online sale of alcoholic drinks;

vi. NACADA should continue to undertake regular engagements with the County and Regional Security Committees of Eastern and North Eastern Regions in order to address the challenges of cannabis trafficking. However, there is need to invest more resources on facilitation and equipment needed by law enforcement agencies to control cannabis trafficking; and

vii. The Government should propose amendments to the Narcotic Drugs and Psychotropic Substances (Control) Act, 1994 in order to enhance penalties of trafficking narcotic drugs including prescribing offences for state or public officers who aid or abet any offences under the Act.

Policy Brief on the Status of Alcohol and Drug Abuse among Employees in the Public Sector Workplace in Kenya

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Introduction

The challenge of addressing and managing drug and alcohol impacts in the workplace is an emerging issue that has been faced by many employers. Many people with alcohol and drug abuse problems are in employment and cost workplaces billions in lost productivity. In addition to higher absenteeism and lower job performance, substance abuse also exposes employers to greater health care costs for workplace related injuries and illnesses.

Contrary to negative and stereotyped images, majority of persons with substance use problems are gainfully employed, equating to millions of people in the workforce with problematic alcohol or drug use. The use of alcohol and other drugs becomes an occupational health and safety issue if a person's ability to exercise judgment, coordination, motor control, concentration and alertness is affected at the workplace, leading to an increased risk of injury or illness. Employees affected by alcohol or other drugs may present a hazard in the workplace, causing injury to themselves and others. Co-workers may also be placed in difficult situations, expected to cover for unsafe work practices or faced with reporting a fellow employee. Workplace alcohol policies can therefore provide a framework for managing all alcohol related issues and should be seen as being central to the principles of a responsible, supportive and caring organization. It is important, however, that the alcohol policy links with other relevant human resources, health and safety policies.

This survey therefore sought to determine the status of alcohol and drug abuse (ADA) among employees in the public sector workplace in Kenya. Specifically, to determine: the prevalence of alcohol and drug abuse among employees in the public sector workplace in Kenya; the effects of alcohol and drug abuse among employees in the public sector workplace in Kenya; factors that influence alcohol and drug abuse among employees in the public sector workplace in Kenya; the status of ADA mainstreaming in the public sector workplace in Kenya; and employee perceptions on the support of alcohol and drug abuse programs in the public sector workplace in Kenya.

Methodology

A cross-sectional study was conducted where both quantitative and qualitative data were collected. A structured questionnaire with open and closed questions was used to generate quantitative and qualitative data. Quantitative data generated the lifetime and current use of alcohol and drugs in the public sector workplace. Open ended questions generated qualitative data used to assess employee perceptions..

The survey applied both probability and non-probability sampling methods. From a sampling frame of 500 public sector institutions, the survey purposively sampled ten (10) percent of the institutions. This translated to 50 public sector institutions. The sampled public sector institutions were stratified into five (5) broad categories. The categories included ministries; departments; parastatals and agencies; tertiary institutions; and universities.

Findings

The following are the main findings of the survey:

Prevalence of alcohol and drug use among employees in the public sector workplace in Kenya

Lifetime usage

44.5% of the employees in the public sector workplace had ever used alcohol;

15.3% of the employees in the public sector workplace had ever used tobacco;

11.3% of the employees in the public sector workplace had ever used *khat/ miraa;*

8.2% of the employees in the public sector workplace had ever used cannabis/ bhang;

2.3% of the employees in the public sector workplace had ever used prescription drugs;

1.3% of the employees in the public sector workplace had ever used cocaine;

1.2% of the employees in the public sector workplace had ever used heroin;

Current usage (usage in the last 30 days prior to the survey)

23.8% of employees in the public sector workplace were currently using alcohol;

4.8% of employees in the public sector workplace were currently using tobacco;

2.9% of employees in the public sector workplace were currently using *khat/ miraa;*

1.9% of employees in the public sector workplace were currently using bhang/ marijuana;

1.0% of employees in the public sector workplace were currently using prescription drugs;

0.8% of employees in the public sector workplace were currently using heroin;

0.8% of employees in the public sector workplace were currently using cocaine;

Effects of alcohol and drug abuse among employees in the public sector workplace in Kenya

- Among employees who had reported late in the last one-year, current alcohol users had a higher prevalence of workplace related lateness (50.0%) compared to current non-users (34.3%);
- Among employees who had been absent in the last one-year, current alcohol users had a higher prevalence of workplace related absenteeism (52.0%) compared to current non-users (46.0%);
- Among employees with workplace related performance or disciplinary problems, current alcohol users had a higher prevalence of workplace performance or disciplinary problems (4.8%) compared to current non-users (2.4%);
- Among employees who had experienced a workplace related injury in the last one-year, current alcohol users had a higher prevalence of workplace related injury (4.5%) compared to current non-users (3.0%);
- Data also showed that the prevalence of alcohol use disorders (AUD) among employees in the public sector workplace in Kenya was 13.2% implying that approximately 89,127 employees had an alcohol use disorder;
- Further categorization of AUDs by severity showed that 5.7% of the employees in the public sector workplace had a mild alcohol use disorder (AUD), 3.0% had a moderate AUD while 4.5% had a severe AUD. This implied that approximately 38,487 employees in the public sector workplace presented with a mild AUD, 20,256 employees presented with a moderate AUD while 30,384 employees presented with a severe AUD;

Factors that influence ADA among employees in the public sector workplace in Kenya

Peer pressure and bad company;

Lack of financial management skills;

Workplace related stress and frustrations;

Lack of career progression leading to stagnation in the same position;

Mistreatment of staff by management;

Work-related harassment;

Failure to get permission to proceed on leave;

Domestic and family related problems;

Lack of mechanisms for early identification of persons with ADA related problems;

Lack of information and knowledge on the effects of ADA;

Working away from family;

Stigmatization of employees with ADA problems;

High disposable income from perdiems;

Unfair distribution of work-related assignments;

Lack of strong mentorship programs;

Lack of proper placement of employees as per their qualification and experience;

Poor interpersonal relationships in the workplace;

Fear of the unknown due to changes in the organization;

Biased promotion and low motivation;

Regular transfers without consultation;

Workplace culture that promotes alcoholism;

Personal choice and lifestyle;

Isolation and lack of forums for employees to share their frustrations;

Regular threats from the employer;

Lack of proper orientation and image of the organization;

Lack of stress management skills;

Lack of fairness when handling disciplinary cases;

Lack of clear policies on management of ADA;

Youthful workforce;

Availability of alcohol during workplace related events;

Status of ADA mainstreaming in the public sector workplace in Kenya

- 60.5% of the employees in the public sector workplace were aware of ADA mainstreaming activities undertaken in their institutions;
- 30.3% of the employees in the public sector workplace had been trained/ sensitized on ADA at least once in the last one year;
- 45.1% of the employees in the public sector workplace had seen ADA messages within their institutions;
- 59.7% of the employees in the public sector workplace were aware of the existence of counselling and treatment services;
- 61.6% of the employees in the public sector workplace were aware of the existence of ADA workplace policy in their institutions;

Employee perceptions on the support of ADA programs in the public sector workplace in Kenya

- 7.5% of employees in the public sector workplace were fully satisfied and 52.5% were satisfied with their institutions in regards to their efficiency on ADA prevention;
- 5.4% were fully satisfied and 42.3% were satisfied with their institutions in regards to early identification of employees with substance use disorders;
- 7.2% were fully satisfied and 44.4% were satisfied with their institutions in regards to

support for employees with substance use disorders;

- 7.4% of the employees were fully satisfied and another 48.3% were satisfied with their institutions in regards to the overall performance of the ADA prevention program;
- 89.9% of the employees disagreed that substance abuse is a private affair, thereby opting for a need to address the problem in the workplace;
- 87.1% disagreed that employees performing poorly should be dismissed from work;
- 91.8% agreed that alcoholism or drug addiction is a disease like any other and so addicts should be assisted in every way;
- 86.4% were in favour of a resident counsellor to help employees affected by ADA related problems;

Recommendations

According to the findings of this survey, alcohol was identified as the major substance of abuse contributing to the burden of substance use disorders in the public sector workplace in Kenya. Therefore, based on the themes identified, the survey recommends the following:

i. Prevention

- There is need for NACADA to innovate and scale up training and sensitization programs targeting employees in the public sector workplace as a key prevention intervention; and
- There is need for public sector institutions to address the work-related stressors and expose the employees to stress management skills in order to realize a healthy, productive and motivated workforce;

ii. Early identification of employees with ADA related problems

- The component of early identification in the public sector workplace needs to be structured in order to intervene much earlier to cases of ADA problems before they progress to the severe stage that is more difficult and expensive to manage;
- There in need for public sector institutions to build capacity of managers and supervisors on early identification and referral of employees presenting with early signs of ADA related problems for support to the EAP through the human resources department;

iii. Brief interventions, treatment and rehabilitation

With evidence of alcohol use disorders (AUDs) among employees in the public sector workplace, there is need for institutions to facilitate affected staff to access brief interventions, treatment and rehabilitation services;

iv. Re-integration, aftercare and follow-up

There is need for public sector institutions to put in place measures to facilitate re-integration, aftercare and follow-up of employees on recovery. This includes assessing and addressing the triggers and enablers of substance use disorders as well as linking employees on recovery support programs;

v. Workplace policy

Public sector institutions should prioritize on developing or reviewing existing ADA workplace policies to respond to their individual needs informed by evidence from institutional surveys especially in the areas of prevention; early identification of employees with ADA related problems; brief interventions, treatment and rehabilitation; and re-integration, aftercare and follow-up programs for employees on recovery.

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