REPUBLIC OF KENYA

NACADA

FOR A NATION FREE FROM ALCOHOL AND DRUG ABUSE

ASSESSMENT OF EMERGING TRENDS OF DRUGS AND SUBSTANCE ABUSE IN KENYA

2021

ASSESSMENT OF EMERGING TRENDS OF DRUGS AND SUBSTANCE ABUSE IN KENYA

FOREWORD

In the last decade, the trend of drug consumption has completely changed, and an incredibly high number of New Psychoactive Substances (NPS) have flooded the drug market as legal alternatives to common drugs of abuse. Up to December 2021, 1,124 substances have been reported to the UNODC Early Warning Advisory (EWA) on NPS by Governments, laboratories and partner organizations. NPS available on the market have similar effects as substances under international control such as cannabis, cocaine, heroin, LSD, MDMA (ecstasy) or methamphetamine. The rapid emergence of a large number of NPS on the global drug market poses a significant risk to public health and a challenge to drug policy. Often, little is known about the adverse health effects and social harms of NPS, which pose a considerable challenge for prevention and treatment.The use of NPS is often linked to health problems. In general, side effects of NPS range from seizures to agitation, aggression, acute psychosis as well as potential development of dependence. NPS users have frequently been hospitalized with severe intoxications. Safety data on toxicity and carcinogenic potential of many NPS are not available or very limited, and information on long-term adverse effects or risks are still largely unknown.

Current anti-drug-abuse strategies commonly focus on the traditional drugs of abuse. The foremost challenge in combating emerging drugs of abuse is that these substances are not covered by current routine testing. As a result, they may penetrate deeply into society by the time they are recognized. Thus, as a preventive measure, regular surveillance to monitor the emergence of new psychoactive substances becomes an essential strategy to inform timely response to mitigate any potential widespread harm to the public. In addition, monitoring, information sharing, early warning and risk awareness are essential to respond to this situation.

Subsequently, the National Authority for the Campaign Against Alcohol and Drug Abuse (NACADA) is mandated to collaborate with other lead agencies to facilitate and promote the monitoring and surveillance of national and international emerging trends and patterns in the production, manufacture, sale, consumption, trafficking and promotion of alcohol and drugs prone to abuse. Towards this, NACADA in partneship with key government agencis commissioned the assessment of Emerging Drugs and Sustance use survey in Kenya 2021. This survey provides critical information that will inform the best approaches to address the challenges of emerging trends of drugs and substance abuse in Kenya.

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ABBREVIATIONS AND ACRONYMS

CBD	Central Business District
CNS	Central Nervous System
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
EWA	Early Warning Advisory
FGDs	Focus Group Discussions
GC – MS	Gas Chromatography – Mass Spectrometry
LSD	Lysergic Acid Diethylamide
NACADA	National Authority for the Campaign against Alcohol and Drug Abuse
NPS	New Psychoactive Substances
UNODC	United Nations Office on Drugs and Crime

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Finally, we recognize the valuable contribution of participants (key informants) in the focus group discussions for their wealth of information including collection of suspected samples for analysis.

Truly, the success of this assessment is credited to them.

EXECUTIVE SUMMARY

In the last decade, the trend of drug consumption has completely changed, and an incredibly high number of new psychoactive substances (NPS) have flooded the drug market as legal alternatives to common drugs of abuse. Current anti-drug-abuse strategies mainly focus on the traditional drugs of abuse. The foremost challenge in combating emerging drugs of abuse is that such drugs are not covered by current routine testing. As a result, they may penetrate deeply into society by the time they are recognized. The study aimed to assess the emerging trends of drugs and substance abuse in Kenya. The study covered all the eight (8) regions of Kenya where suspected samples were collected for analysis. A total of 204 samples were collected and submitted to the Government Chemist for laboratory analysis and identification.

Results showed that diazepam, benzhexol (artane), flunitrazepam (rohypnol), amitriptyline, chlorpromazine (largactil), codeine, carbamazepine, tramadol, chlorpheniramine, benadryl, haloperidol, propofol and olanzapine were the most commonly abused prescription drugs in Kenya. Findings from FGDs showed that abuse of prescription drugs was common among the youth between the ages of 10 to 35 years. In terms of geographic distribution, the problem was widespread across the country with usage being higher in urban areas compared to rural areas.

Findings on tobacco products showed an emerging trend in the use of smokeless tobacco especially among the youth. The most prevalent forms of smokeless tobacco were snuff, tamboo (form of kuber) and ndovu (form of kuber). Other new forms of tobacco products identified were shisha pens, nicotine pouches and electronic nicotine delivery systems or e-cigarettes. In terms of nicotine strength, snuff was most potent followed by tamboo, ndovu, nicotine pouches and lastly shisha flavours.

Further, findings showed that the abuse of cannabis was widespread across all the sampled counties. The study showed that besides the smoked cannabis, there was an emerging trend in the use of cannabis edibles. The identified cannabis edibles included "*weed cookies*", "*weed mabuyu*" (dried baobab seeds) and "*weed sweets/candies*". Emerging trend also showed that access to heroin had penetrated to other non-traditional counties like Nakuru, Uasin Gishu, Kisumu, Kiambu and Isiolo.

According to the findings of this assessment, there was evidence of emerging trends in the abuse of prescription drugs, smokeless tobacco, e-cigarettes or vaping devices and cannabis edibles. Evidence also shows that there was a growing market for heroin use in the country. Therefore, in view of these evolving challenges, the assessment proposes the following recommendations:

1. There was emerging evidence in the abuse of prescription drugs in Kenya. This problem was widespread across the country and presented the youth with a cheaper alternative for getting “high” despite negative health effects associated with the abuse prescription drugs. In this regard, there is need for the Pharmacy and Poisons Board to provide strict guidelines in the handling of prescription drugs in government and private pharmacies to eradicate risks of diversion to unintended users;

2. With the emerging challenge of diversion of prescription drugs for non-medical use, the Pharmacy and Poisons Board needs to implement interventions to control this problem. This will include engagement of the law enforcement agencies and the healthcare providers to suppress diversion of prescription drugs for non-medical use. In addition, the Board in partnership with NACADA needs to implement demand reduction strategies aimed at education of those at risk on the potential harms and other adverse consequences of non-medical use of prescription drugs;

3. The study established a growing market for heroin in the country beyond the traditionally known hotspots of Mombasa and Nairobi. There was evidence of heroin abuse in Uasin Gishu, Kisumu, Nakuru, Kiambu and Isiolo counties. Further, the use of cannabis edibles presents an emerging challenge in the control of narcotic drugs. Therefore there was need for enforcement agencies to adopt new narcotic drug control approaches to respond to these evolving challenges including continuous monitoring for new emerging markets for narcotic drugs;

4. There was an emerging trend in the use of smokeless tobacco, nicotine pouches and e-cigarettes or vaping devices. Therefore, towards overcoming the enforcement challenges presented by the availability of these emerging tobacco products, there was need for the Ministry of Health to amend the Tobacco Control Act, 2007;

5. The range of drugs and substances of abuse is rapidly changing and requires continuous monitoring and surveillance activities. The assessment established a growing trend in the abuse of prescription drugs, cannabis edibles, smokeless tobacco products and e-cigarettes or vaping devices. Therefore, there was need for NACADA to sensitize and educate the public on the emerging trends of drugs and substances of abuse.

CHAPTER ONE: INTRODUCTION

1.1 Background

The rapid emergence of a large number of new psychoactive substances (NPS) on the global drug market poses a significant risk to public health and a challenge to drug policy. Often, little is known about the adverse health effects and social harms of NPS, which pose a considerable challenge for prevention and treatment. Monitoring, information sharing, early warning and risk awareness are essential to respond to this situation.

In the last decade, the trend of drug consumption has completely changed, and an incredibly high number of new psychoactive substances (NPS) have flooded the drug market as legal alternatives to common drugs of abuse (Faltore and Weinstein, 2019). Up to December 2021, 1,124 substances have been reported to the UNODC Early Warning Advisory (EWA) on NPS by governments, laboratories and partner organizations. NPS available on the market have similar effects as substances under international control such as cannabis, cocaine, heroin, LSD, MDMA (ecstasy) or methamphetamine (UNODC, 2021).

1.2 New psychoactive substances (NPS)

In the last decade, the trend of drug consumption has completely changed, and an incredibly high number of new psychoactive substances (NPS) have flooded the drug market as legal alternatives to common drugs of abuse. The advent of NPS has contributed to the appearance and growth of a new "drug scenario" characterized by an increased number of intoxicated people presenting with emergencies after consumption of drugs with unknown effects or safety profiles. Indeed, the acute effects of NPS and their long-term side effects are not always known, and safety data regarding their toxicity are often unavailable. Considering that a total of 803 NPS were reported in the period 2009–2017, it is clear that such a situation poses additional challenges for identification, control, and treatment strategies (Faltore and Weinstein, 2019).

NPS have been known in the market by terms such as "legal highs", "bath salts" and "research chemicals". UNODC uses the term "new psychoactive substances (NPS)" which are defined as "substances of abuse, either in a pure form or a preparation, that are not controlled by the 1961 Single Convention on Narcotic Drugs or the 1971 Convention on Psychotropic Substances, but which may pose a public health threat". The term "new" does not necessarily refer to new inventions — several NPS

were first synthesized decades ago — but to substances that have recently become available on the market (UNODC, 2021).

The NPS market continues to be very dynamic and is characterized by the emergence of large numbers of new substances belonging to diverse chemical groups. Between 2009 and 2016, 106 countries and territories reported the emergence of 739 different NPS to the United Nations Office on Drugs and Crime (UNODC). Marketed in many different ways and forms, new substances often emerge quickly and disappear again, while some become used regularly among a small group of users. Several countries have reported NPS being sold under the name of controlled drugs such as "LSD" and "ecstasy". Often used for reasons similar to those for the use of traditional drugs, their easy availability and low prices have made certain NPS highly attractive to some groups of drug users (UNODC, 2017).

1.3 Risks for new psychoactive substances (NPS)

The use of NPS is often linked to health problems. In general, side effects of NPS range from seizures to agitation, aggression, acute psychosis as well as potential development of dependence. NPS users have frequently been hospitalized with severe intoxications. Safety data on toxicity and carcinogenic potential of many NPS are not available or very limited, and information on long-term adverse effects or risks are still largely unknown. Purity and composition of products containing NPS are often not known, which places users at high risk as evidenced by hospital emergency admissions and deaths associated with NPS, often including cases of poly-substance use (UNODC, 2021).

1.4 Rationale

Current anti-drug-abuse strategies commonly focus on the traditional drugs of abuse. The foremost challenge in combating emerging drugs of abuse is that these substances are not covered by current routine testing. As a result, they may penetrate deeply into society by the time they are recognized. Thus, as a preventive measure, regular surveillance to monitor the emergence of new psychoactive substances becomes an essential strategy to inform timely response to mitigate any potential widespread harm to the public. In addition, monitoring, information sharing, early warning and risk awareness are essential to respond to this situation (UNODC, 2021).

As a result, the Authority through the NACADA Act 2012 is mandated to collaborate with other lead agencies to facilitate and promote the monitoring and surveillance of national and international emerging trends and patterns in the production, manufacture, sale, consumption, trafficking and promotion of alcohol and drugs prone

to abuse. This study therefore provides critical information that will inform the best approaches to address the challenges of emerging trends of drugs and substance abuse in Kenya. This assessment was undertaken in collaboration between NACADA, Pharmacy and Poisons Board, Government Chemist and Ministry of Interior and Coordination of National Government.

1.5 Objectives

1.5.1 General objective

To assess the emerging trends of drugs and substance abuse in Kenya

1.5.2 Specific objectives

a. To collect and analyze samples of emerging drugs of abuse for laboratory identification;

b. To identify emerging drugs of abuse by their street names;

c. To identify the sources, modes of administration, health effects and reasons for abuse.

1.6 Limitations of the study

The scope of the study was limited to 18 purposively sampled counties among the 47 counties in Kenya. Secondly, given that the study adopted an exploratory design, the generalizability of the findings may not be guaranteed. Finally, identification of samples was limited to the Agilent Life Sciences G1035D Wiley 10th with NIST 2011 MS Library.

CHAPTER TWO: METHODOLOGY

2.1 Study area

The study was conducted in the eight regions of Kenya namely; Nairobi, Central, Eastern, North Eastern, Rift Valley (North Rift and South Rift), Nyanza, Western and Coast. In total, 18 counties were covered in the survey. The counties included Nairobi, Kajiado, Nakuru, Kisii, Kisumu, Busia, Trans Nzoia, Uasin Gishu, Kiambu, Nyeri, Meru, Isiolo, Garissa, Marsabit, Makueni, Mombasa, Kilifi and Kwale.

2.2 Study design

The study used an exploratory cross-sectional design where both qualitative and quantitative data was generated. While the main methodological approach in contemporary research of drugs remains quantitative, there has been a growing responsiveness to triangulate studies with the use of qualitative methods as a means of in-depth investigation and understanding of the problem (Agar, 1980).

2.3 Target population

The target population constituted the sub-group population of youth who are knowledgeable on drugs and substances of abuse.

2.4 Sampling procedure

The study relied on non-probability sampling methods given the hidden and criminal nature of drugs and substance abuse. All the eight regions were sampled purposively to understand the national landscape of the problem and to ensure broad representation of respondents based on economic, social and cultural diversity. From each of the eight sampled regions, 18 counties were purposively selected based on known drug use patterns and behaviour (NACADA, 2017), rural-urban dichotomy and proximity to Kenya's national borders. From the 18 counties, 22 sub-counties were purposively selected using similar criteria. From each sub-county, one location was also purposively selected for data collection. These were the units where focus group discussions (FGDs) were conducted as well as collection of suspected samples of emerging drugs prevalent in the area. FGDs were conducted at a venue provided by the area Chief. Identification of the first participant for the FGD was done by the area Chief or youth leaders implementing alcohol and drug abuse prevention and treatment interventions. In the inclusion criteria, a respondent needed to be either a current drug user or a recovering drug user. After identification of the first respondent meeting the inclusion criteria, snow balling sampling method was used to identify the next respondent through peer referral. Each respondent

was allowed to recruit one respondent from their networks until a threshold of 6 – 8 FGD participants was achieved. Both male and female genders were included in the sample for FGDs. A total of 22 FGDs were conducted in the eight regions (Table A1). The study targeted a purposive sample of 176 participants.

Table 1: Focus group discussion sites

Region	Sampled County	Sampled Sub-County	Sampled Location
Nyanza	Kisumu	Kisumu Town East	Town
	Kisii	Kisii Central	Nyatieko
Nairobi	Nairobi	Lang'ata	Nairobi West
		Eastleigh	Eastleigh
		Roysambu	Roysambu
		Kasarani	Githurai
Central	Nyeri	Nyeri Central	Mukaro
	Kiambu	Kiambu	Town
North Rift Valley	Uasin Gichu	Eldoret West	Kibulgeny
South Rift Valley	Nakuru	Nakuru	Municipality
	Kajiado	Kajiado Central	Kitengela
Eastern	Makueni	Makueni	Wote
	Isiolo	Isiolo	Central
	Marsabit	Saku	Township
	Meru	Meru North	Maua Town
Western	Trans-Nzoia	Trans-Nzoia West	Municipality
	Busia	Busia	Township
Coast	Mombasa	Kisauni	Kisauni
	Kwale	Diani	Diani
	Kilifi	Bahari	Mtwapa
		Malindi	Malindi
North Eastern	Garissa	Garissa Central	Township

2.5 Research instruments

Qualitative data was captured using FGD guides. This elicited rich qualitative data that aided deeper understanding of the problem of emerging trends on drugs and substance abuse in Kenya. One FGD was conducted in each of the sampled locations. After convening the team, the moderator started the session with the introductions and setting of the ground rules. This was followed by a brief description of the assignment and the benefits of the study findings. The moderator also assured the participants that their anonymity, confidentiality and privacy would

be safeguarded. Individual responses were captured in writing in order to encourage participation in the discussions following reservations on the use of tape recording. The interviews were conducted either in Kiswahili or English languages based on the literacy levels of participants. The moderators were recruited prior to the study and trained on the objectives, identification of suspected prescription drugs and procedures for conducting the discussions.

2.6 Sample collection

During the FGD sessions, participants were requested to mention all the emerging drugs and substances that they were available in the locality, narrowing down to the specific drugs that they were currently using. From the discussions, the moderators were able to identify a list of suspected prescription drugs for non-medical use that were commonly known by their street names. After the discussion, the moderator identified two volunteers from the FGD who were currently using suspected emerging substances to assist with the sample collection. Suspected samples were collected using convenience sampling method. After consent was obtained, the volunteers were facilitated to collect one sample per category of each suspected prescription drugs identified during the discussions.

The collected samples were received by a representative from the Government Chemist for coding and labeling. Each sample was given a sample number; date of sampling; the county, sub-county and location; method of sampling; and the name of the handling officer. This information was further recorded in a sample collection register. Each suspected sample was also recorded according to its street names. After labeling, the samples were packaged and transported to the Government Chemist laboratory for testing and identification. Being an exploratory study investigating an emerging trend, there was no pre-determined sample size. Rather, efforts were made to collect any suspected samples of emerging drugs identified from all the sampled sites.

2.7 Sample identification

The samples were processed and screened using the UV-Visible Spectrophotometer (Shimadzu UV-VIS – 1650PC) and identity confirmed using Gas Chromatography linked with Mass Spectrometer detector (GC-MS, Agilent Model GC 7890B with a mass spectrometer 5977A MSD). Identification of samples was limited to the use of Agilent Life Sciences G1035D Wiley10th with NIST 2011 MS Library. GC-MS is one of the most commonly used techniques for the identification and quantification of forensic drug samples including pharmaceuticals. As a “hyphenated” technique, it combines the separation power of a GC with the analyte specificity of a spectroscopic technique, providing highly specific spectral data on individual compounds in a complex mixture often without prior separation (Gill, Stead and Moffat, 1981; Rop

et al., 1988). GC-MS and UV-VIS spectrometry techniques are also destructive in nature, because they require sample preparation making them unsuitable for use afterwards.

2.8 Data analysis

Descriptive statistics especially frequencies and percentages were used to describe, organize and summarize results from laboratory analysis. Content analysis was used to analyse the qualitative data. Field notes from the FGDs were entered into the computer immediately after the discussions. The field notes were reviewed numerous times and the broad thematic areas were extracted and coded. The codes were grouped into categories based on similarity. These categories were linked to their sub-categories and subsequently, they were arranged around a common cluster. Finally, the main theme was extracted. The coding process was undertaken by two researchers to ensure comparability of codes. Any differences in the codes were resolved through discussion and consensus. Direct quotes were also generated to capture views and experiences of participants.

CHAPTER THREE: RESULTS

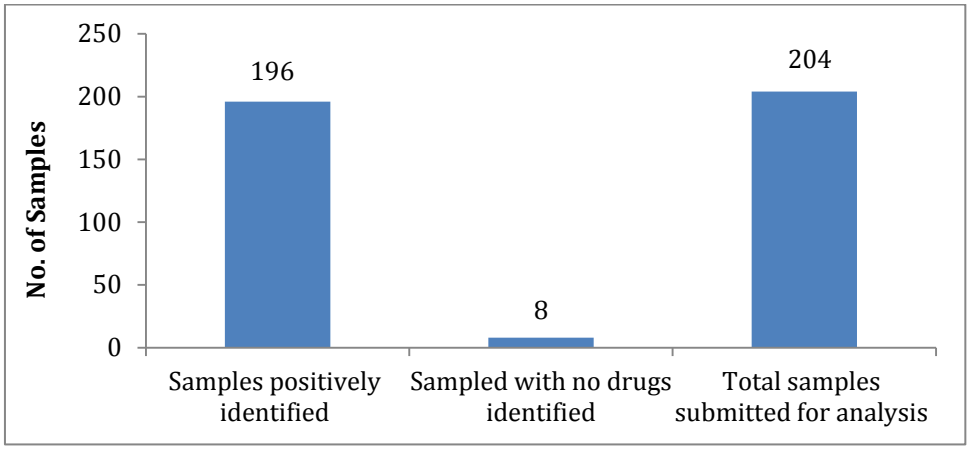
3.1 Introduction

This section presents the findings of laboratory analysis of suspected samples collected across the country.

3.2 Summary of analyzed samples

The laboratory report showed that out of a total of 204 samples submitted to the Government Chemist for analysis, 196 of them were positively identified while 8 samples had negative results (no drugs detected) (Figure 1).

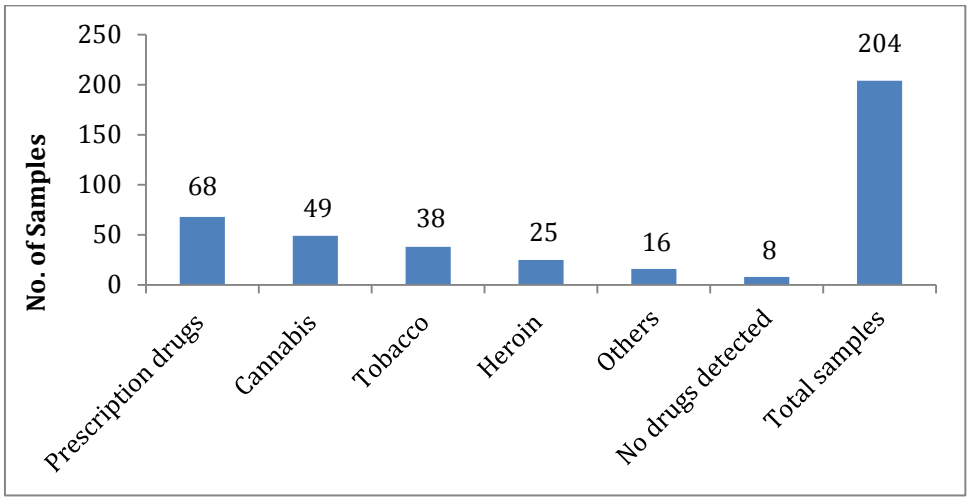
Figure 1: Summary of analyzed samples



3.3 Profile of positively identified samples

Of the total samples submitted for analysis, confirmatory results showed that 68 samples were prescription drugs; 49 samples were cannabis; 38 samples were tobacco; 25 samples were heroin; 16 samples were categorized as others ; while 8 samples had negative results (no drugs were identified) (Figure 2).

Figure 2: Profile of positively identified samples



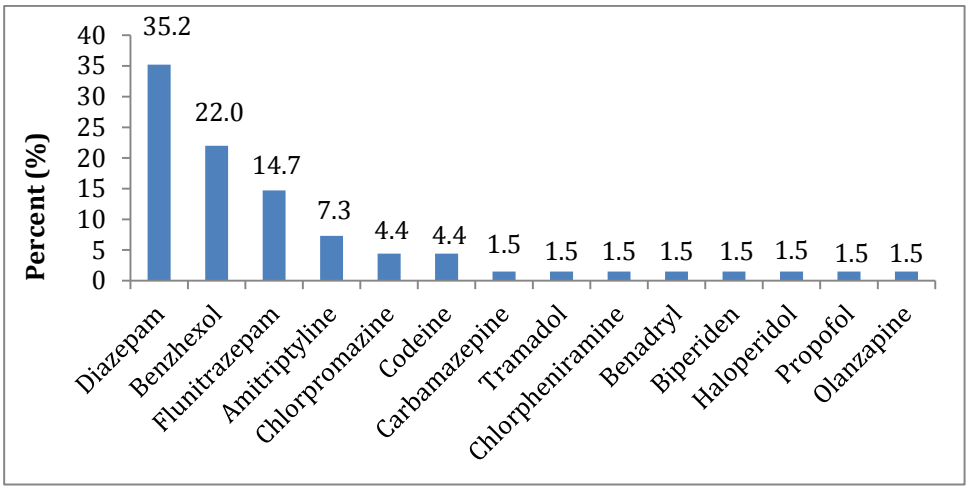
3.4 Findings of laboratory analysis

The positively identified drugs were classified into five (5) main categories: prescription drugs; tobacco; cannabis; heroin; and other drugs. The following section presents detailed results of each category:

3.4.1 Prescription drugs

Laboratory analysis confirmed that 68 samples were prescription drugs. Further analysis showed that diazepam was the most widely abused prescription drug representing 35.2% of the 68 samples followed by benzhexol (artane) (22.0%), flunitrazepam (rohypnol) (14.7%), amitriptyline (7.3%), chlorpromazine (largactil) (4.4%), codeine (4.4%), carbamazepine (1.5%), tramadol (1.5%), chlorpheniramine (1.5%), benadryl (1.5%), haloperidol (1.5%), propofol (1.5%) and olanzapine (1.5%) (Table 3).

Figure 3: Profile of the commonly abused prescription drugs in Kenya



According to Table 2, abuse of prescription drugs was widespread across the country where 12 out of the 18 sampled counties had confirmed results of prescription drugs abuse. The affected counties included Nairobi, Garissa, Meru, Marsabit, Makueni, Mombasa, Kilifi, Kwale, Busia, Kisumu, Uasin Gishu and Nyeri.

Table 2: Results of laboratory analysis for confirmed samples of prescription drugs

No.	Sample No.	Confirmed drug	Sampled County
1.	F/MISC/641/19	Benzhexol	Nairobi
2.	F/MISC/643/19	Diazepam	Nairobi
3.	F/MISC/644/19	Benzhexol	Nairobi
4.	F/MISC/645/19	Flunitrazepam	Nairobi
5.	F/MISC/646/19	Diazepam	Nairobi
6.	F/MISC/647/19	Benzhexol	Nairobi
7.	F/MISC/653/19	Diazepam	Garissa
8.	F/MISC/655/19	Amitriptyline	Garissa
9.	F/MISC/657/19	Diazepam	Meru
10.	F/MISC/664/19	Diazepam	Marsabit
11.	F/MISC/672/19	Diazepam	Makueni
12.	F/MISC/681/19	Diazepam	Mombasa
13.	F/MISC/682/19	Flunitrazepam	Mombasa
14.	F/MISC/686/19	Amitriptyline	Kilifi
15.	F/MISC/687/19	Diazepam	Kilifi
16.	F/MISC/688/19	Flunitrazepam	Kilifi

No.	Sample No.	Confirmed drug	Sampled County
17.	F/MISC/691/19	Diazepam	Kwale
18.	F/MISC/692/19	Amitriptyline	Kwale
19.	F/MISC/701/19	Flunitrazepam	Kilifi
20.	F/MISC/702/19	Diazepam	Kilifi
21.	F/MISC/706/19	Diazepam	Kilifi
22.	F/MISC/710/19	Diazepam	Kilifi
23.	F/MISC/711/19	Chlorpromazine	Kilifi
24.	F/MISC/715/19	Amitriptyline	Kilifi
25.	F/MISC/716/19	Diazepam	Kilifi
26.	F/MISC/721/19	Amitriptyline	Mombasa
27.	F/MISC/722/19	Flunitrazepam	Mombasa
28.	F/MISC/723/19	Diazepam	Mombasa
29.	F/MISC/726/19	Flunitrazepam	Nairobi
30.	F/MISC/727/19	Diazepam	Nairobi
31.	F/MISC/732/19	Diazepam	Kiambu
32.	F/MISC/734/19	Diazepam	Nairobi
33.	F/MISC/735/19	Benzhexol	Nairobi
34.	F/MISC/737/19	Diazepam	Nairobi
35.	F/MISC/745/19	Diazepam	Nairobi
36.	F/MISC/747/19	Flunitrazepam	Nairobi
37.	F/MISC/749/19	Benzhexol	Nairobi
38.	F/MISC/750/19	Diazepam	Nairobi
39.	F/MISC/751/19	Codeine	Nairobi
40.	F/MISC/752/19	Benadryl	Nairobi
41.	F/MISC/754/19	Flunitrazepam	Nairobi
42.	F/MISC/756/19	Benzhexol	Nairobi
43.	F/MISC/757/19	Benzhexol	Nairobi
44.	F/MISC/758/19	Diazepam	Nairobi
45.	F/MISC/760/19	Flunitrazepam	Nairobi
46.	F/MISC/767/19	Benzhexol	Busia
47.	F/MISC/773/19	Chlorpromazine	Busia
48.	F/MISC/776/19	Chlorphenamine	Kisumu
49.	F/MISC/781/19	Biperiden	Kisumu
50.	F/MISC/783/19	Benzhexol	Kisumu
51.	F/MISC/785/19	Benzhexol	Kisumu
52.	F/MISC/786/19	Codeine	Kisumu

No.	Sample No.	Confirmed drug	Sampled County
53.	F/MISC/787/19	Carbamazepine	Kisumu
54.	F/MISC/788/19	Codeine	Kisumu
55.	F/MISC/792/19	Benzhexol	Kisumu
56.	F/MISC/793/19	Haloperidol	Kisumu
57.	F/MISC/796/19	Diazepam	Busia
58.	F/MISC/801/19	Tramadol	Uasin Gishu
59.	F/MISC/803/19	Benzhexol	Uasin Gishu
60.	F/MISC/804/19	Diazepam	Uasin Gishu
61.	F/MISC/809/19	Diazepam	Uasin Gishu
62.	F/MISC/810/19	Benzhexol	Nairobi
63.	F/MISC/821/19	Benzhexol	Nyeri
64.	F/MISC/822/19	Propofol	Nyeri
65.	F/MISC/836/19	Olanzapine	Uasin Gishu
66.	F/MISC/837/19	Benzhexol	Uasin Gishu
67.	F/MISC/838/19	Chlorpromazine	Uasin Gishu
68.	F/MISC/707/19	Flunitrazepam	Kilifi

Further categorization of the identified prescription drugs showed that they belonged to six (6) broad classes namely: antidepressants (diazepam, flunitrazepam and amitriptyline); antipsychotic (olanzapine, chlorpromazine and carbamazepine); anticholinergic (benzhexol, biperiden and haloperidol); opioid analgesics (codeine and tramadol); anaesthetics (propofol); and antihistamines (benadryl and chlorpheniramine) (Table 3).

Table 3: Classification of confirmed prescription drugs

No.	Classification	List of confirmed drugs
1.	Antidepressants	diazepam (valium), flunitrazepam (rohypnol) and amitriptyline
2.	Antipsychotic	olanzapine, chlorpromazine (largactil) and carbamazepine
3.	Anticholinergic	benzhexol (artane), biperiden and haloperidol
4.	Opioid analgesics	Tramadol and Codeine
5.	Anaesthetics	propofol
6.	Antihistamines	benadryl and chlorpheniramine

3.4.2 Tobacco

Findings on tobacco products showed an emerging trend in the use of smokeless tobacco especially among the youth. The most prevalent forms of smokeless tobacco were snuff, tamboo (form of kuber) and ndovu (form of kuber). Other new forms of tobacco products identified were shisha pens, nicotine pouches and electronic nicotine delivery systems or e-cigarettes. In terms of nicotine strength, snuff was most potent followed by tamboo, ndovu, nicotine pouches and lastly shisha flavours (Table 4).

Table 4: Laboratory analysis report for tobacco samples

No.	Sample No.	Type of Sample	Nicotine Content	Source County
1.	F/MISC/633/19	Snuff	0.93%	Nairobi
2.	F/MISC/639/19	Snuff	0.25%	Nairobi
3.	F/MISC/649/19	Snuff	0.4%	Nairobi
4.	F/MISC/669/19	Snuff	1.60%	Makueni
5.	F/MISC/662/19	Snuff	0.04%	Meru
6.	F/MISC/666/19	Al Fakhri Shisha Apple Flavor	0.95%	Marsabit
7.	F/MISC/670/19	Snuff	1.97%	Makueni
8.	F/MISC/673/19	Snuff	1.61%	Makueni
9.	F/MISC/674/19	Snuff	1.89%	Makueni
10.	F/MISC/678/19	Snuff	1.62%	Makueni
11.	F/MISC/703/19	Snuff	1.58%	Kilifi
12.	F/MISC/720/19	Snuff	1.19%	Mombasa
13.	F/MISC/739/19	Nicotine Pouches	0.62%	Nairobi
14.	F/MISC/740/19	Nicotine Pouches	0.34%	Nairobi
15.	F/MISC/741/19	Nicotine Pouches	0.31%	Nairobi
16.	F/MISC/742/19	Snuff	0.54%	Nairobi
17.	F/MISC/753/19	Al Fakher Shisha Red Flavor	0.37%	Nairobi
18.	F/MISC/755/19	Al Fakher Shisha Kiwi Flavor	0.26%	Nairobi
19.	F/MISC/759/19	Al Fakher Shisha Kiwi Flavor	0.19%	Nairobi
20.	F/MISC/768/19	Snuff	0.05%	Busia
21.	F/MISC/769/19	Snuff	0.0497%	Busia
22.	F/MISC/770/19	Snuff	0.11%	Busia
23.	F/MISC/778/19	Ndovu	0.7%	Kisumu

No.	Sample No.	Type of Sample	Nicotine Content	Source County
24.	F/MISC/790/19	Ndovu	1.53%	Kisumu
25.	F/MISC/794/19	Ndovu		Kisumu
26.	F/MISC/799/19	Snuff	0.28%	Kisii
27.	F/MISC/805/19	Snuff	1.16%	Uasin Gishu
28.	F/MISC/811/19	Oris Slim Double Apple Blend Cigarette	1.5%	B068/19
29.	F/MISC/818/19	Snuff	0.51%	Kitale
30.	F/MISC/819/19	Tamboo	0.7%	Kitale
31.	F/MISC/825/19	Snuff	0.43%	Nyeri
32.	F/MISC/826/19	Snuff	0.51%	Nyeri
33.	F/MISC/832/19	Kamath Spit Tobacco	1.19%	Nairobi
34.	F/MISC/833/19	Tamboo	0.79%	Nairobi
35.	F/MISC/834/19	Tamboo	0.94%	Nairobi
36.	F/MISC/835/19	Tamboo	0.1%	Nairobi
37.	F/MISC/658/19	Snuff	0.269%	Meru
38.	F/MISC/779/19	Snuff	0.05%	Kisumu

3.4.3 Cannabis

Findings showed that the abuse of cannabis was widespread across all the sampled counties. The study showed that besides the smoked cannabis, there was an emerging trend in the use of cannabis edibles. The identified cannabis edibles included "*weed cookies*", "*weed mabuyu*" (dried baobab seeds) and "*weed sweets/candies*" (Table 5).

Table 5: Laboratory analysis report for cannabis samples

No.	Sample No.	Identified Drug	Type of Sample	Sampled County
1.	F/MISC/634/19	Cannabis	Plant	Nairobi
2.	F/MISC/635/19	Cannabis	Cookies	Nairobi
3.	F/MISC/636/19	Cannabis	Plant	Nairobi
4.	F/MISC/637/19	Cannabis	Mabuyu	Nairobi
5.	F/MISC/638/19	Cannabis	Plant	Nairobi
6.	F/MISC/640/19	Cannabis	Plant	Kiambu
7.	F/MISC/650/19	Cannabis	Plant	Nairobi
8.	F/MISC/651/19	Cannabis	Plant	Nairobi

No.	Sample No.	Identified Drug	Type of Sample	Sampled County
9.	F/MISC/654/19	Cannabis	Plant	Garissa
10.	F/MISC/656/19	Cannabis	Plant	Garissa
11.	F/MISC/660/19	Cannabis	Plant	Meru
12.	F/MISC/665/19	Cannabis	Plant	Marsabit
13.	F/MISC/667/19	Cannabis	Plant	Isiolo
14.	F/MISC/671/19	Cannabis	Plant	Makueni
15.	F/MISC/676/19	Cannabis	Plant	Makueni
16.	F/MISC/677/19	Cannabis	Plant	Makueni
17.	F/MISC/679/19	Cannabis	Plant	Makueni
18.	F/MISC/680/19	Cannabis	Plant	Mombasa
19.	F/MISC/689/19	Cannabis	Plant	Kilifi
20.	F/MISC/694/19	Cannabis	Plant	Kwale
21.	F/MISC/697/19	Cannabis	Plant	Kwale
22.	F/MISC/698/19	Cannabis	Plant	Kwale
23.	F/MISC/699/19	Cannabis	Plant	Kilifi
24.	F/MISC/700/19	Cannabis	Plant	Kilifi
25.	F/MISC/705/19	Cannabis	Plant	Kilifi
26.	F/MISC/709/19	Cannabis	Plant	Kilifi
27.	F/MISC/714/19	Cannabis	Plant	Kilifi
28.	F/MISC/718/19	Cannabis	Plant	Mombasa
29.	F/MISC/719/19	Cannabis	Plant	Mombasa
30.	F/MISC/728/19	Cannabis	Plant	Nairobi
31.	F/MISC/729/19	Cannabis	Unlabelled sweets	Nairobi
32.	F/MISC/730/19	Cannabis	Plant	Kiambu
33.	F/MISC/731/19	Cannabis	Plant	Kiambu
34.	F/MISC/738/19	Cannabis	Plant	Nairobi
35.	F/MISC/771/19	Cannabis	Plant	Busia
36.	F/MISC/772/19	Cannabis	Plant	Busia
37.	F/MISC/779/19	Cannabis	Plant	Kisumu
38.	F/MISC/780/19	Cannabis	Plant	Kisumu
39.	F/MISC/789/19	Cannabis	Plant	Kisumu
40.	F/MISC/795/19	Cannabis	Plant	Kisumu
41.	F/MISC/797/19	Cannabis	Plant	Kisii
42.	F/MISC/807/19	Cannabis	Plant	Uasin Gishu
43.	F/MISC/808/19	Cannabis	Plant	Uasin Gishu

No.	Sample No.	Identified Drug	Type of Sample	Sampled County
44.	F/MISC/815/19	Cannabis	Plant	Kitale
45.	F/MISC/816/19	Cannabis	Plant	Kitale
46.	F/MISC/823/19	Cannabis	Plant	Nyeri
47.	F/MISC/824/19	Cannabis	Plant	Nyeri
48.	F/MISC/829/19	Cannabis	Plant	Nakuru
49.	F/MISC/831/19	Cannabis	Plant	Nakuru

3.4.4 Heroin

Heroin is the second widely used narcotic drug after cannabis in Kenya. For a long time, abuse of heroin has been more prevalent in the Coastal region and Nairobi. Emerging trend shows that access to heroin has penetrated to other non-traditional counties like Nakuru, Uasin Gishu, Kisumu, Kiambu and Isiolo (Table 6).

Table 6: Laboratory analysis report for heroin samples

No.	Sample No.	Identified Drug	Sampled County
1.	F/MISC/642/19	Heroin	Nairobi
2.	F/MISC/648/19	Heroin	Nairobi
3.	F/MISC/668/19	Heroin	Isiolo
4.	F/MISC/683/19	Heroin	Mombasa
5.	F/MISC/684/19	Heroin	Mombasa
6.	F/MISC/685/19	Heroin	Mombasa
7.	F/MISC/690/19	Heroin	Kilifi
8.	F/MISC/693/19	Heroin	Kwale
9.	F/MISC/695/19	Heroin	Kwale
10.	F/MISC/696/19	Heroin	Kwale
11.	F/MISC/704/19	Heroin	Kilifi
12.	F/MISC/708/19	Heroin	Kilifi
13.	F/MISC/712/19	Heroin	Kilifi
14.	F/MISC/713/19	Heroin	Kilifi
15.	F/MISC/724/19	Heroin	Mombasa
16.	F/MISC/725/19	Heroin	Nairobi
17.	F/MISC/733/19	Heroin	Kiambu
18.	F/MISC/736/19	Heroin	Nairobi
19.	F/MISC/746/19	Heroin	Nairobi
20.	F/MISC/748/19	Heroin	Nairobi
21.	F/MISC/761/19	Heroin	Nairobi

22.	F/MISC/762/19	Heroin	Nairobi
23.	F/MISC/791/19	Heroin	Kisumu
24.	F/MISC/806/19	Heroin	Uasin Gishu
25.	F/MISC/830/19	Heroin	Nakuru

3.4.5 Others

Table 7 presents findings of other assorted samples presented for analysis. Findings showed evidence of alcoholic drinks that do not conform to set standards with a sample from Uasin Gishu with an alcohol content of 91.29%. Further, adulteration of alcohol with a substance like toluene was an interesting finding. Analysis also revealed that toluene and o-xylene were the potent psychoactive substances among suspected inhalant samples.

Table 7: Laboratory analysis report for other suspected samples

No.	Sample No.	Identified Drug	Sampled County
1.	F/MISC/659/19	Indomethacin	Meru
2.	F/MISC/675/19	Ethanol 37.5%	Makueni
3.	F/MISC/763/19	Ethanol 24.04%	Busia
4.	F/MISC/764/19	Ethanol 36.56%	Busia
5.	F/MISC/765/19	Ethanol 38.46%	Busia
6.	F/MISC/766/19	Ethanol 38.84%	Busia
7.	F/MISC/774/19	Ethosuximide	Kisumu
8.	F/MISC/775/19	Prednisolone	Kisumu
9.	F/MISC/777/19	Ethosuximide and Caffeine	Kisumu
10.	F/MISC/784/19	Acetaminophen and Caffeine	Kisumu
11.	F/MISC/802/19	Ethanol 91.29% and Toluene	Eldoret
12.	F/MISC/812/19	Caffeine 18.85 MG/100ML	Kitale
13.	F/MISC/813/19	Caffeine 31.94 MG/100ML	Kitale
14.	F/MISC/817/19	Acetaminophen	Kitale
15.	F/MISC/827/19	Ethanol 8.15%	Nakuru
16.	F/MISC/828/19	Toluene, Oxylene	Nakuru

3.5 Analysis of adulterants in heroin samples

Heroin, amphetamine, and cocaine are often extensively adulterated or "*cut*" with a variety of substances, adulterants and/or diluents, in order to increase the dealer's profit. "*Cutting*" agents can constantly change over time, increasing the user's health risks caused by the compound interactions and intrinsic toxicity. Identification of potentially dangerous substances contaminating illicit drugs is important because

these substances might be more toxic than the drug itself. Detailed knowledge and understanding of cutting agents found in street drugs may provide information about distribution routes (Andreasen, Lindholst and Kaa, 2009).

Some of the reasons for adding adulterants to street drugs are:

1. Bulking or increasing volume of drugs to maximize profits;
2. Enhancing or mimicking the pharmacological effects of the active ingredient;
3. Facilitating the administration of the substance of abuse (e.g. caffeine makes heroin to vaporize at lower temperatures and therefore easier to smoke);
4. Improve the organoleptic characteristics of drugs;

Figure 8 shows the profile of adulterants or “cutting agents” that were commonly identified from heroin samples available in the Kenyan market.

Table 8: Laboratory analysis report for adulterants in heroin samples

No.	Sample No.	Sampled location	Adulterants											
			Caffeine	Aminophylline	Codeine	Morphine	Papaverine	Phenacetin	Dextrometho-rphan	Racemetho-rphan	Morphinan	Noscapine	Acetaminophen	Nicotine
1.	F/MISC/641/19	Nairobi - Mathare	√		√				√		√			
2.	F/MISC/648/19	Nairobi - CBD	√		√		√				√			
3.	F/MISC/668/19	Isiolo - Central	√				√				√			
4.	F/MISC/683/19	Mombasa - CBD	√		√	√	√				√			
5.	F/MISC/684/19	Mombasa - CBD	√		√	√	√				√			
6.	F/MISC/685/19	Mombasa - CBD	√		√	√	√		√		√	√		
7.	F/MISC/690/19	Kilifi - Mtwapa	√		√	√	√				√			
8.	F/MISC/693/19	Kwale - Diani	√		√	√	√				√			
9.	F/MISC/695/19	Kwale - Diani	√		√	√					√			
10.	F/MISC/696/19	Kwale – Diani	√		√		√				√			
11.	F/MISC/704/19	Kilifi - CBD	√	√	√	√	√				√			√
12.	F/MISC/708/19	Kilifi - Malindi	√		√				√		√			
13.	F/MISC/712/19	Kilifi - Watamu	√		√	√	√				√			√

No.	Sample No.	Sampled location	Adulterants											
			Caffeine	Aminophylline	Codeine	Morphine	Papaverine	Phenacetin	Dextrometho-rphan	Racemetho-rphan	Morphinan	Noscapine	Acetaminophen	Nicotine
14.	F/MISC/713/19	Kilifi - Likoni	√		√	√	√	√			√		√	
15.	F/MISC/724/19	Mombasa – Kisauni	√		√	√	√		√		√		√	
16.	F/MISC/725/19	Nairobi – Mathare	√						√		√			
17.	F/MISC/733/19	Kiambu – Ruaka	√		√				√		√	√		
18.	F/MISC/736/19	Nairobi – Roysambu	√				√				√			√
19.	F/MISC/746/19	Nairobi – Eastleigh	√						√		√			
20.	F/MISC/748/19	Nairobi – Eastleigh	√						√		√			
21.	F/MISC/761/19	Nairobi – Eastleigh	√						√		√			
22.	F/MISC/762/19	Nairobi -Eastleigh	√						√		√			
23.	F/MISC/791/19	Kisumu – Town	√						√		√			
24.	F/MISC/806/19	Uasin Gishu – Langas	√		√	√	√				√	√		
25.	F/MISC/830/19	Nakuru - Town	√		√		√		√	√	√			
	Total Samples		**25**	**1**	**17**	**11**	**15**	**1**	**12**	**1**	**25**	**3**	**2**	**3**

As shown in Table 9, out of a total of 25 confirmed heroin samples, 100% of them were adulterated with caffeine, 100% morphinan, 68.0% codeine, 60.0% papaverine, 48.0% dextromethorphan, 44.0% morphine, 12.0% noscapine, 12.0% nicotine, 8.0% acetaminophen, 4.0% racemethorphan, 4.0% phenacetin and 4.0% aminophylline. The findings show that heroin available in the local market contains a mixture of drugs which may have different effects and unknown consequences and may even be more acute when injected or used intravenously.

Table 9: Summary of adulterants in heroin samples

No.	Heroin Adulterant	Number (n)	Proportion (%) of total samples
1.	Caffeine	25	100
2.	Aminophylline	1	4.0
3.	Codeine	16	68.0
4.	Morphine	11	44.0
5.	Papaverine	15	60.0
6.	Phenacetin	1	4.0
7.	Dextromethorphan	12	48.0
8.	Racemethorphan	1	4.0
9.	Morphinan	25	100
10.	Noscapine	3	12.0
11.	Acetaminophen	2	8.0
12.	Nicotine	3	12.0

3.6 Identification of drugs and substances of abuse by their street names

It's important to understand that dugs may be known by different names, depending on the geographic location and culture of the user. It is essential for parents, teachers and friends to be aware of the different street names for drugs for the purposes of monitoring and early identification of drug use behaviour patterns.

3.6.1 Street names for cannabis/ marijuana samples

Cannabis/ marijuana is the most widely abused narcotic drug in Kenya. Findings showed that there were two types of smoked cannabis. The most preferred type was known as "*shash*" trafficked from Shashamane in Ethiopia. The second type of cannabis was the "local" marijuana that was less potent and bigger in size. In addition, edible cannabis products were also identified in the market especially "*weed cookies*", "*weed candies*/ *sweets*" and "*weed mabuyu*". The findings are presented in Table 10.

Table 10: Street names for cannabis/ marijuana samples

No.	Sampled Drug		Street names
1.		Marijuana/ Cannabis/ Bhang	- *Shash (marijuana from shashamane)* - *Bangi* - *Moshi* - *Slim (marijuana from shashamane)* - *Koro(local marijuana)* - *Local (local marijuana)* - *Kitunguu nice (marijuana from shashamane due to the "sweet smell")* - *Vela* - *Ndom* - *Kindom* - *Kindukulu* - *Ndukulu* - *Gush (local marijuana)* - *Taifa* - *Tagi (local marijuana)* - *Kisumu (local marijuana)*
2.		Marijuana/ Cannabis/ Bhang	
3.		Marijuana/ Cannabis/ Bhang	
4.		Marijuana/ Cannabis/ Bhang	
5.		Marijuana/ Cannabis/ Bhang	

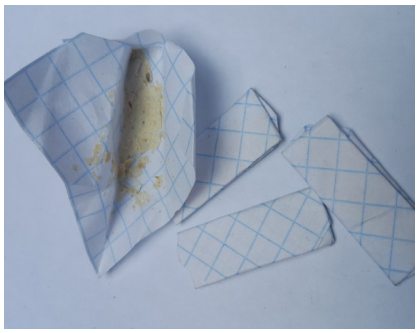
No.	Sampled Drug		Street names
6.		Edible Marijuana/ Cannabis/ Bhang	- *Jah soup*
7.		Edible Marijuana/ Cannabis/ Bhang	- *Weed cookies*
8.		Edible Marijuana/ Cannabis/ Bhang	- *Weed cookies*

No.	Sampled Drug		Street names
9.		Edible Marijuana/ Cannabis/ Bhang	- *Weed mabuyu*
10.		Edible Marijuana/ Cannabis/ Bhang	- *Weed sweets/ weed candy*

3.6.2 Street names for heroin samples

Heroin is the second most widely used narcotic drug after cannabis/ marijuana. The sampled heroin was available in powder or crystalline forms. The heroin was wrapped in sachets with silver or white paper. It was reported that different peddlers wrap heroin using different types of paper to enable users easily identify their products. The silver wrapping was common in the Coast. It was reported that the silver wrapping prevents heroin from 'sweating' due to the high temperatures. The white or squared paper was more common in other parts of the country. It was also established that heroin was also named by the source of the drug e.g. "*Nairobi flower*" from Nairobi and "*Karachi*" from Tanzania. The findings are presented in Table 11.

Table 11: Street names for heroin samples

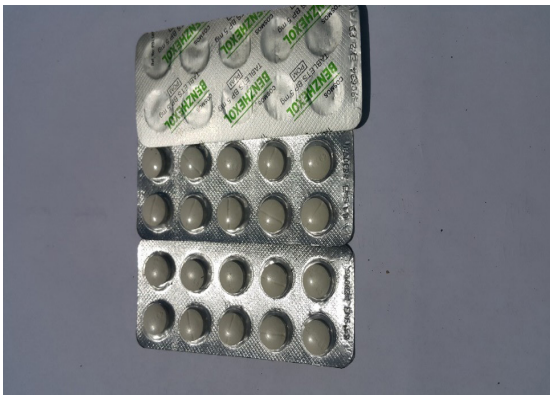
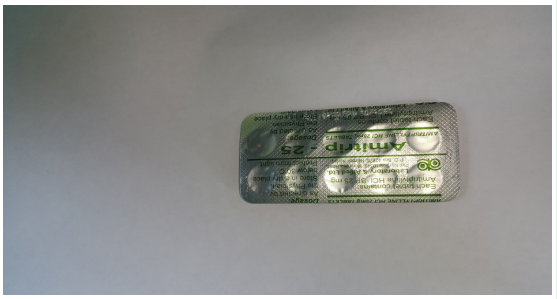
No.	Sampled Drug		Street names
1.		Heroin	- *Kichuri* - *Kucha* - *Mondo* - *Dawa* - *Kikete* - *Kete*
2.		Heroin	- *Stuff* - *Unga* - *Brown* - *Dragon* - *White crest* - *Brown crest*
3.		Heroin	- *Mzigo* - *Brown sugar* - *Nairobi flower (heroin from Nairobi)* - *Karachi (heroin from Tanzania)* - *Ngoma* - *Chwiri* - *Mnanda* - *Boroka* - *Pashwar*

3.6.3 Street names for prescription drugs

Abuse of prescription drugs was one of the emerging trends established by the survey. These are controlled drugs which can only be accessed using a prescription. Regulation of controlled substances is governed by three multilateral treaties: the Single Convention on Narcotic Drugs 1961, as amended by its 1972 Protocol

(United Nations, 1961), the Convention on Psychotropic Substances 1971 (United Nations, 1971), and the Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances 1988 (United Nations, 1988). In Kenya, these prescription drugs are scheduled under the Pharmacy and Poisons Act, Cap 244 Revised in 2012 (GoK, 1989) and the Narcotic Drugs and Psychotropic Substances (Control) Act (1994). The trade and street names are presented in Table 12.

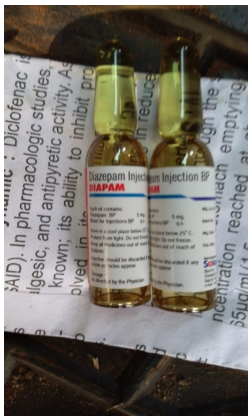
Table 12: Street names for prescription drugs

No.	Sampled Drug	Trade names	Street names
1.		Benzhexol (Artane)	- *White* - *Cosmos* - *Tembe* - *Maduya* - *Tap tap*
2.	 	Amitriptyline	- *Red beret* - *Red* - *Cosmos* - *Ma-red* - *Orange* - *Maorange* - *Red ballet* - *Red devil* - *Bwana red*

No.	Sampled Drug	Trade names	Street names
3.		Cozepam (Diazepam)	- *C5* - *C* - *Mayellow* - *Cosmos* - *Tembe*
4.	 	Flunitraze-pam (Ro-hypnol)	- *Bugizi* - *Blue* - *Mchele* - *Tembe* - *Digda* - *Alanka* - *Roche*
5.	 	Betapyn	- *Codeine*

No.	Sampled Drug	Trade names	Street names
6.		Codeine syrup	- *Codica* - *Shorobo* - *Siku nusu*
7.		Codeine syrup	- *Codeine*
8.		Tramadol	- *Tramadol*

No.	Sampled Drug	Trade names	Street names
9.	 	Betapyn	- *Codeine*

No.	Sampled Drug	Trade names	Street names
10.	 	Diazepam (Valium)	- *D5* - *Cosmos*
11.		Diazepam/ Valium	- *Dunga*

3.6.3 Street names for tobacco products

According to Table 13, the survey established various forms of smoked and smokeless tobacco. The survey also established that shisha was being abused despite the ban imposed by the Government through the Ministry of Health. It was also shown that cigarettes were being flavored and presented in very appealing designs.

Table 13: Street names for tobacco products

No.	Sampled Drug	Trade names	Street names
1.		Oris apple blended cigarettes	- *Oris*
2.		Lyft nicotine pouches	- *Lyft*
3.		Snuff	- *Ugoro* - *Chavez* - *Mbaki* - *Chaves* - *Rwara* - *Maruku*
4.		Tamboo	- *Ndovu* - *Kuber*

5.		Snuff	- *Ugoro* - *Chavez* - *Mbaki* - *Chaves* - *Rwara* - *Maruku*
6.		Shisha apple flavor	- *Shisha*
		Shisha pen	- *Shisha*
		Shisha pen	- *Shisha*

		e-cigarette or vaping devices	- *Vape*
		e-cigarette or vaping devices	- *Vape*
		e-cigarette or vaping devices	- *Vape*

3.7 Focus group discussions

The survey team conducted focus group discussions with study participants across the country to understand the demographic characteristics of users; sources of drugs; methods of administration; reasons of use; and health effects of emerging drugs. The findings were limited to prescription drugs.

3.7.1 Demographic characteristics of users

- Findings from FGDs showed that the abuse of prescription drugs was common among the youth between the ages of 10 to 35 years;
- In terms of gender, it was reported that the usage by males was slightly higher than that of females;
- In terms of geographic distribution, the problem was widespread across the country with usage being higher in urban areas compared to rural areas;
- Majority of the users of prescription drugs were unemployed with a secondary level education.

3.7.2 Sources of prescription drugs

The FGDs explored the common sources of prescription drugs in order to understand the enforcement gaps that require to be addressed.

- One of the most commonly reported sources of emerging drugs were local pharmacies;

"*If I want to buy my drug, I will just go to a chemist and they are going to sell to me*" (a 24 year old male)

"*I buy from a specific chemist because they know me. But if you go there they will not sell to you because they do not know you*" (a 28 year old male)

- Another commonly reported source was government hospitals and mental health facilities where a network of street peddlers was involved in the diversion of prescription drugs;

"*There is a person in town who gets the drugs in bulk from the hospital. He is the one who sells to us. But if you go to the hospital, they will not give you*" (a 24 year old male)

3.7.3 Modes of administration of prescription drugs

Drug administration refers to the process which a drug enters the body. The most common methods of administration are injecting; smoking; inhaling; snorting; and swallowing. FGDs showed that prescription drugs were being administered in three different modes:

a. Oral administration

This was the most commonly reported mode of administration for prescription drugs use given that most of the commonly abused types were in tablet form. Other forms of oral administration was through "spiking" of drinks and other edibles especially using rohypnol, commonly referred to as *mchele*. Other prescription drugs like largactil, diazepam/ valium and codeine syrup were also mixed with soda or juice.

b. Injecting

Injecting was another mode of administration that was reported though it was limited to prescription drugs that were injectable in nature e.g. intravenous diazepam or valium.

c. Smoking

Smoking of prescription drugs was also reported among users of heroin. It was reported that diazepam tablets were crushed and mixed with heroin and cannabis for smoking.

3.7.4 Reasons for abuse of prescription drugs

The FGDs explored the reasons behind abuse of prescription drugs in order to inform prevention programs. Some of the reasons reported were as follows:

- Prescription drugs were considered "legal highs" and therefore better alternative to illicit drugs like narcotics;

"*I don't fear to be arrested for taking these drugs. If you are caught using heroin or marijuana by police, you are going to be arrested. I don't fear to hide when taking these drugs because you can get them from a chemist or a hospital*" (a 21 year old male)

- Prescription drugs were very affordable, readily available and easily accessible. It was perceived as a cheaper way for users to get "high"

especially when they could not access enough finances to purchase the more expensive narcotic drugs especially heroin;

"*With only 20 ksh, I am able to buy a few tablets that will make me feel good*" (a 24 year old male)

"*When I don't have money to buy heroin, I will buy "ma-white" (street name for benxhexol) and use them to cover for missing heroin*" (a 32 year old male)

- Prescription drugs were commonly used to "knock-off" the effect of stimulant drugs in order to overcome the side effects of insomnia;

"*After chewing khat for many hours, I can't sleep. I have to take "C5" (street name for diazepam) for me to sleep*" (a 30 year old male)

- Prescription drugs were being used to enhance the psychoactive effect of narcotic drugs. It was perceived that the use of two or more drugs with a similar psychoactive effect on the CNS enhanced the intensity of intoxication among the users;

"*When I smoke my dose of heroin, I will also top up with some cosmos (street name for benzhexol) to feel more high*" (a 31 year old male)

- Prescription drugs were used as a motivation to commit crime especially by criminal gangs. This included "spiking" and dragging of unsuspecting revelers by female sex workers with the primary intention of robbing from them;

"*I always take bugizi (street name for rohypnol) before I go to commit a crime. It gives me courage not to fear anything. Even when I hurt somebody, tomorrow I will not remember what I did*" (a 26 year old male)

"*These days we no longer put mchele (street name for rohypnol) in alcohol because men have known. I will buy a chewing gum, make a cut at the centre and insert a small piece of "mchele" in the gum. Once he is drunk, I will offer him a chewing gum but I will first pick one without the drug. Then I will give him the one with a drug. Once he chews the gum, I can do what I want*" (a 27 year old female)

"*Men have become clever, but we have become cleverer. I will wait for him to get drunk. Then I will excuse myself and dash to the toilet and smear "mchele" (street name for rohypnol) around my nipples and around the neck where they love to kiss*" (a 36 year old female)

3.7.5 Health effects of using prescription drugs

FGDs also explored the health effects associated with prescription drugs abuse. These effects were as follows:

- Hallucinations and loss of consciousness;
- Loss of memory;
- Slurred speech;
- Addiction;
- Withdrawal symptoms;
- Continuous body scratching;
- False confidence;
- Depression and suicidal thoughts;

CHAPTER FOUR: CONCLUSION AND RECOMMENDATIONS

This section presents the major highlights of the survey and recommendations.

4.1 Conclusion

4.1.1 Prescription drugs

- Laboratory analysis showed that diazepam, benzhexol (artane), flunitrazepam (rohypnol), amitriptyline, chlorpromazine (largactil), codeine, carbamazepine, tramadol, chlorpheniramine, benadryl, haloperidol, propofol and olanzapine as the most commonly abused prescription drugs in Kenya;
- Findings from FGDs showed that the abuse of prescription drugs was common among the youth between the ages of 10 to 35 years;
- In terms of gender, it was reported that the usage by males was slightly higher than that of females;
- In terms of geographic distribution, the problem was widespread across the country with usage being higher in urban areas compared to rural areas;
- The most commonly reported sources of prescription drugs were local pharmacies, government hospitals, mental health facilities and street peddlers;
- The most commonly used modes of administration of prescription drugs were oral, injecting and smoking.

Reasons for abuse of prescription drugs

- Prescription drugs were considered “legal highs” and therefore better alternative to illicit drugs like narcotics;
- Prescription drugs were very affordable, readily available and easily accessible. It was perceived as a cheaper way for users to get “high” especially when they could not access enough finances to purchase the more expensive narcotic drugs especially heroin;

- Prescription drugs were commonly used to “knock-off” the effect of stimulant drugs in order to overcome the side effects of insomnia;
- Prescription drugs were being used to enhance the psychoactive effect of narcotic drugs;
- Prescription drugs were used as a motivation to commit crime especially by criminal gangs. This included “spiking” and dragging of unsuspecting revelers by female sex workers with the primary intention of robbing from them;

4.1.2 Tobacco

- Findings showed an emerging trend in the use of smokeless tobacco including nicotine pouches and electronic nicotine delivery systems or e-cigarettes;

4.1.3 Cannabis

- Findings showed that besides the smoked cannabis, there was an emerging trend in the use of cannabis edibles. The identified edibles included “*weed cookies*”, “*weed mabuyu*” (dried baobab seeds) and “*weed sweets*/ *candies*”;

4.1.4 Heroin

- Emerging trend showed that access to heroin had penetrated to other non-traditional counties like Nakuru, Uasin Gishu, Kisumu, Kiambu and Isiolo;

4.2 Recommendations

According to the findings of this assessment, there was evidence of emerging trends in the use of prescription drugs, smokeless tobacco, e-cigarettes or vaping devices and cannabis edibles. Evidence also shows that there was a growing market for heroin use in the country. Therefore, in view of these evolving challenges, the assessment proposes the following recommendations:

1. There was emerging evidence in the abuse of prescription drugs in Kenya. This problem was widespread across the country and presented the youth with a cheaper alternative for getting “high” despite negative health effects associated with the abuse of prescription drugs. In this regard, there is need for the Pharmacy and Poisons Board to provide strict guidelines in the handling of prescription drugs in government and private pharmacies to

eradicate risks of diversion to unintended users;

2. With the emerging challenge of diversion of prescription drugs for non-medical use, the Pharmacy and Poisons Board needs to implement interventions to control this problem. This will include engagement of the law enforcement agencies and the healthcare providers to suppress diversion of prescription drugs for non-medical use. In addition, the Board in partnership with NACADA needs to implement demand reduction strategies aimed at education of those at risk on the potential harms and other adverse consequences of non-medical use of prescription drugs;

3. The study established a growing market for heroin in the country beyond the traditionally known hotspots of Mombasa and Nairobi. There was evidence of heroin abuse in Uasin Gishu, Kisumu, Nakuru, Kiambu and Isiolo counties. Further, the use of cannabis edibles presents an emerging challenge in the control of narcotic drugs. Therefore there was need for enforcement agencies to adopt new narcotic drug control approaches to respond to these evolving challenges including continuous monitoring for new emerging markets for narcotic drugs;

4. There was an emerging trend in the use of smokeless tobacco, nicotine pouches and e-cigarettes or vaping devices. Therefore, towards overcoming the enforcement challenges presented by the availability of these emerging tobacco products, there was need for the Ministry of Health to amend the Tobacco Control Act, 2007;

5. The range of drugs and substances of abuse is rapidly changing and requires continuous monitoring and surveillance activities. The assessment established a growing trend in the abuse of prescription drugs, cannabis edibles, smokeless tobacco products and e-cigarettes or vaping devices. Therefore, there was need for NACADA to sensitize and educate the public on the emerging trends of drugs and substances of abuse.

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