

## Screen prevalence of drugs of abuse in patients' urine – a retrospective study

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### Abstract

**Background:** Screening for drugs of abuse in the urine of patients presenting for drug related clinical problems has become a necessity in hospital management programs. Such ability to carry out a simple rapid test with good reliability and of low financial implication has made the request for this procedure routine. The purpose of the present study was to present the screen prevalence of drug of abuse in urine of patients seeking treatment at a tertiary mono-specialist hospital in north-west Nigeria.

**Methodology:** A retrospective analysis of results of drug urine testing for the years 2012 to 2015 were carried out based on the laboratory register of Federal Neuropsychiatric Hospital, Barnawa-Kaduna. The drugs screened for were benzodiazepine, tetrahydrocannabinoid (i.e. THC – the cannabis substrate), opiate, cocaine, ketamine, barbiturate, ecstasy and phencyclidine.

**Results:** The mean age of the 574 patients' results obtained was 28.51 (SD=10.30) years, majority were males (92.7%) and close to half were Muslims. Overall screen prevalence was 57.3% with majority (38.0%) screening positive for one drug of abuse. The screen prevalence of individual drug of abuse found in descending order was: benzodiazepines (36.4%), THC (27.4%), opiate (10.6%), ketamine (2.1%), cocaine (1.6%), barbiturate (1.6%) and phencyclidine (1.2%). Patients' specific parameters with more positive results were being less than 30years in age and belonging to the male gender.

**Conclusion:** The present study showed that the drug urine positive test screen prevalence was high with majority of those affected being less than 30 years of age and belonging to the male gender. This calls for further study to show the relevance of routine drug urine testing based on the type of treatment being sought.

**Keywords:** Substance use; Psychiatric Hospital; Urine tests

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### Introduction

Drugs of abuse are psychoactive substances that produced specific effects in the user's brain, physiology and behaviour. Such effects were initially thought of as symptoms' and signs' clusters of an acute

disorder rather than the more recent and accurate chronic disease that it is.<sup>1,2</sup> The recent understanding had reshaped treatment strategies as ongoing and as one that addressed many areas of the user's life. This continuum of care had been

categorized into five levels of medically managed intensive inpatient, residential, intensive outpatient, outpatient and early intervention.<sup>[3]</sup> A simple, rapid and recurring practice of most of the various aspects of the different levels of treatment is routine psychoactive drug testing in client's urine. Such ability to carry out a simple rapid test with good reliability and of low financial implication has made the request for this procedure more popular and a necessity among clinicians and in other relevant settings like correctional facilities, legal system, employment firms etc.<sup>[1,4,5]</sup>

Despite the popularity of drug urine testing globally and especially in relevant setting, there was no study on this phenomenon in Nigeria which should assist in providing prevalence estimation for drug use based on clients' body sample testing. Hence, the purpose of the present study was to present the screen prevalence of drug of abuse in urine of patients seeking treatment at a tertiary mono-specialist hospital in Kaduna, north-west Nigeria.

### **Methodology**

A retrospective analysis of results of drug urine testing for the years 2012 to 2015 were carried out based on the laboratory register of Federal Neuropsychiatric Hospital, Barnawa-Kaduna. The drugs

screened for were benzodiazepine, tetrahydrocannabinoid (i.e. THC – the cannabis substrate), opiates, cocaine, ketamine, barbiturate, ecstasy, amphetamines, methamphetamines and phencyclidine.

### **Results**

The mean age of the 574 patients' results obtained was 28.51 (SD=10.30) years, majority were males (92.7%) and close to half were Muslims. Overall screen prevalence was 57.3% with majority (38.0%) screening positive for one drug of abuse. The flow of positive results across the years of study showed an increase rise which appeared to stabilize in the last two years. The screen prevalence of individual drug of abuse found in descending order was: benzodiazepines (36.4%), THC (27.4%), opiate (10.6%), ketamine (2.1%), cocaine (1.6%), barbiturate (1.6%), phencyclidine (1.2%), metamphetamine (0.3), ecstasy (0.3) and amphetamines (0.2). None of the patients' specific parameters are significantly associated with the overall toxicology results outcome.

Table 1: Socio-demographics of participants

Variables		Frequency (%)
Age	<30 years	382 (66.6)
	30 years and above	192 (33.4)
Mean (SD)		28.51 (10.30)
Gender	Female	42 (7.3)
	Male	532 (92.7)
Religion	Islam	279 (48.6)
	Christianity	295 (51.4)
Test outcome	Negative	245 (42.7)
	Positive	329 (57.3)*

\* = among the 57.3% who are positively screened 38% uses one drug of abuse and 19.3% uses more than one drugs of abuse (i.e. 15% uses two drugs of abuse, 3.7% uses 3 drugs of abuse and 0.7% uses 4 drugs of abuse)

## Discussion

In this four years retrospective study, the most common drugs of abuse found in urine of participants after toxicology test was benzodiazepines. This observation was different from two population wide studies in Nigeria reporting alcohol as the most common drugs of abuse and benzodiazepines (i.e. sedatives) as the second<sup>6</sup> and third<sup>7</sup> most commonly abused substance. The observed difference might be related to this sedative being one of the most routinely use chemical restraint in this hospital practice. Also, that the toxicology test strip does not screen for alcohol might be why this pattern

Table 2 – Screen prevalence of specific psychoactive substances

Psychoactive Substances	Present [n(%)]	Negative [n(%)]
Benzodiazepines	209 (36.4)	365 (63.6)
Tetrahydrocanna binoids	157 (27.4)	417 (72.6)
Opiates*	61 (10.6)	513 (89.4)
Cocaine	9 (1.6)	565 (98.4)
Ketamine	12 (2.1)	562 (97.9)
Amphetamine	1 (0.2)	573 (99.8)
Metamphetamine	2 (0.3)	572 (99.7)
Barbiturate	9 (1.6)	565 (98.4)
Ecstasy (MDMA)	2 (0.3)	572 (99.7)
Phencyclidine	7 (1.2)	567 (98.8)

\* = morphine [7], tramadol [8] and other opiates [46]

Table 3 – Cross-tabulation of participants' sociodemographic variables with toxicology result outcome

	Toxicology test outcome		Test Statistics
	Negative	Positive	
Age			
Less than 30 years	155 (40.6%)	227 (59.4%)	$\chi^2 = 2.072$ p = 0.150
30 years and above	90 (46.9%)	102 (53.1%)	
Gender			
Female	19 (45.2%)	23 (54.8%)	$\chi^2 = 0.121$ p = 0.728
Male	226 (42.5%)	306 (57.5%)	
Religion			
Christianity	133 (45.1%)	162 (54.9%)	$\chi^2 = 1.431$ p = 0.232
Islam	112 (40.1%)	167 (59.9%)	

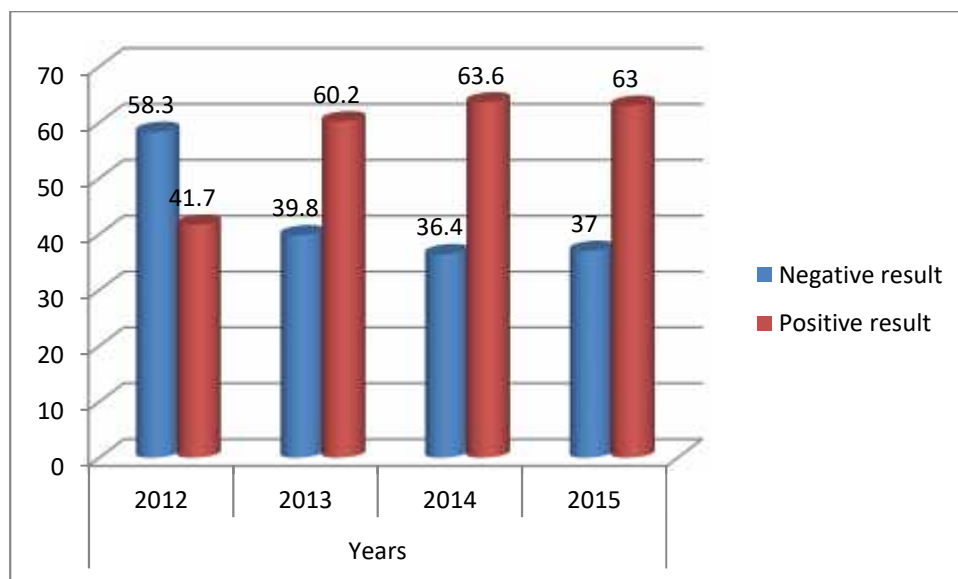


Figure 1 – Bar chart of screen prevalence of psychoactive substances across the period of study

differed from previous studies in Nigeria. The use of benzodiazepines as the main chemical restraint agent might also account for why the rate reported in this study was quite higher than the life time use rate in the two larger Nigerian studies. This last observation was further supported by the more recent population wide study that the region of this study (north-west Nigeria) was noted to have the least rate of use for benzodiazepines despite being an urban area.<sup>6</sup>

Tetrahydrocannabinoid (THC) as the substrate of cannabis was the second most positive toxicology test result. Although, the rate reported in this study was quite higher than that reported in the two nationwide studies on substance use in Nigeria, it

however agreed with the global observation of rise in the use of cannabis. Furthermore, it concurred with the two population-wide studies in Nigeria that cannabis is the most used illicit drug of abuse despite the bias that this study sample was from a regional mono-specialist hospital. Also, the region of this study being the north-west zone of Nigeria was not noted for the highest rate of use of cannabis.<sup>6,7</sup>

The rate of opiate (i.e. heroin and other opiates) in this study was closer to that of the most recent wider Nigerian study.<sup>7</sup> This observation was quite surprising considering the study was hospital based and the comparison was with the larger Nigerian community. A place of

agreement might be in terms of urbanity, but the region where this study took place was not noted to have the highest user rate which was south-west Nigeria.

The rates of the substrates of most of the remaining drugs of abuse reported in the study's toxicology test were lower than reported prevalence among the non-hospital based Nigerians.<sup>6</sup> This was expected as the north-west region of Nigeria reported the lowest rate of use for cocaine, ecstasy and amphetamine apart from metamphetamine which was highest in region of study. A speculation for the general low rates of these substances might be that the cut-off point set by the manufactures was to detect dependence rather than use.<sup>4</sup> The reported rates of ketamine and phencyclidine in this study unlike in all previous studies did suggested their non-inclusion in previous studies measuring scales. Hence we advocated that subsequent non-hospital based studies should include ketamine and phencyclidine among the substances of abuse of interest in the street.

The main limitation of our study was that clinical diagnosis was not compared with the urine toxicology test. And this made it difficult to speculate on the reasons why toxicology tests were often requested for as the study's overall prevalence rate was not close to 100%. Also, because the study

was hospital based and in one region of Nigeria, the outcome here cannot be generalised to other hospital samples in different regions of Nigeria. Furthermore, since our study data did not specify whether the urine specimen were collected from inpatient or outpatient, the value of the results became difficult to generalised to either of the patient types that patronised the hospital.

### Conclusion

The present study showed that the drug urine positive test screen prevalence was high with majority of those affected being less than 30 years of age and belonging to the male gender. This calls for further study to show the relevance of routine drug urine testing based on the type of treatment being sought.

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Conflict of interest: Nil