A descriptive epidemiology of substance use and substance use disorders in Nigeria during the early 21st century

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This paper is dedicated to the memory of Dr. Michael Ekpo.

Abstract

Background: Several studies have examined the use of psychoactive substances among selected groups in Nigeria. Here, we extend the description to include the features of substance dependence.
Method: A stratified multi-stage random sampling of households was used to select respondents in 21 of Nigeria's 36 states (representing 57% of the national population). In-person interviews with 6752 adults were conducted using the World Health Organization Composite International Diagnostic Interview, Version 3. Lifetime history and recent (past year) use, as well as features of dependence on, alcohol, tobacco, cannabis, sedatives, stimulants, and other drugs were assessed.
Results: Alcohol was the most commonly used substance, with 56% (95% confidence interval, CI = 54, 58%) ever users and 14% (95% CI = 13, 15%) recent (past year) users. Roughly 3% were recent smokers (3%, 95% CI = 2.6, 4.2%). Next most common were sedatives, 4% (95% CI = 2.3, 4.5%), and cannabis smokers, 0.4% (95% CI = 0.1, 0.6%). Males were more likely than females to be users of every drug group investigated, with male preponderance being particularly marked for cannabis. Prevalence of both alcohol and tobacco use was highest among middle aged adults. Moslems were much less likely to use alcohol than persons of other faiths, but no such association was found for tobacco, non-prescription drug use, or illegal drug use. Features of abuse and dependence were more common at the population level for alcohol; but among users, these features were just as likely to be experienced by alcohol users as they were by other drug users.
Conclusion: Alcohol is the most commonly used psychoactive drug in Nigeria. Features associated with drug dependence and abuse are less prevalent but may require attention by public health authorities.
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Keywords: Nigeria; Composite International Diagnostic Interview; Epidemiological research; Tobacco; Alcohol; Cannabis; Drugs

1. Introduction

The use of psychoactive drugs has long interested Nigerian researchers (Leighton et al., 1963). Most of this work has examined alcohol (Gureje et al., 1992). Limited work has been conducted upon the use of tobacco and cannabis (Oviasu, 1976; Asuni, 1964; Elegbeleye and Femi-Pearse, 1976; Ibeh and Ele, 2003). Use of drugs such as stimulants, sedatives, and cocaine has rarely been studied (Ebie et al., 1981; Agaba et al., 2004).

There are limits to existing work. Much of it is based on surveys of population subgroups such as students or hospital patients (Abiodun et al., 1994; Adamson and Akindele, 1994;

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Odejide et al., 1987); few have been carried out in primary care settings or in the community (Gureje et al., 1992; Gureje and Obikoya, 1990). Results of existing studies suggest that the majority of Nigerians do not drink alcohol. Its use is predominantly among middle aged males, although alcohol and tobacco consumption by women and young people may be rising (Ibeh and Ele, 2003; Alakija, 1984). Cannabis use is circumscribed, rarely occurring before adolescence and after young adulthood. About 15% of primary care attendees used over-the-counter sedatives, with many becoming long-term users; use of these drugs may be more common among females than for other drugs (Gureje and Obikoya, 1990).

Very little is known about occurrence of drug dependence in Nigeria, and no previous studies assessed a broad range of drugs with a large and representative sample of the population. Studies of representative samples addressing level of use and profile of associated problems are needed to provide empirical data upon which informed policy response to drug problems can be based. Such studies are expensive to mount and require considerable expertise, both of which are not commonly available in most research centres in sub-Saharan Africa. Surveys of illegal drug use, of alcohol consumption, tobacco use, and of use of analgesics have been conducted in localized urban areas of Benin City and Jos (Ebie et al., 1981; Obot, 1990). The study of tobacco use in the community by Obot provided data on a large sample of adult "heads of household" (Obot, 1990), but not other household residents. Thus, even though a number of authors have expressed concern about the growing rate of smoking in Africa (Taha and Ball, 1982; Yach, 1986; Jha and Chaloupka, 1999) and estimates of per capita alcohol consumption have been made by the World Health Organization (World Health Organization, 2004; Rehm et al., 1999), there is actually very little empirical basis upon which to base a categorical statement about the community profile of smoking or alcohol consumption in Nigeria.

The Nigerian national survey of mental health and well-being (NSMHW) was designed to fill the existing gap in the epidemiology of mental disorders and drug use (and related disorders) in Nigeria using present day assessment tools; based upon current diagnostic classification systems, principally the American Psychiatric Association's Diagnostic and Statistical Manual (DSM-IV; American Psychiatry Association, 1994) and the World Health Organization's International Classification of Diseases (ICD-10; World Health Organization, 1992). It was carried out as part of the World Mental Health Surveys (WMH) initiative, a WHO-organized collaborative effort, now with more than 20 countries participating (Demyttenaere et al., 2004).

In this initial report on the descriptive epidemiology of substance use and substance use disorders in Nigeria, we examine two specific questions:

1. For the population of Nigeria under study, what is the estimated population prevalence of use of tobacco, alcohol, and other non-prescription drugs, and what are the prevalence estimates for features associated with dependence on these substances?

2. Are there any distinctive subgroups of the population where cases are more or less likely to be observed, with subgroups based upon demographic and social correlates of alcohol, tobacco and other drug use?

2. Methods

Detailed descriptions of the NSMHW methods have been published elsewhere (Gureje et al., 2006). Here, we provide a brief summary overview, with focus upon two aspects of the methods that are of special importance in epidemiological field research: (1) the nature of the multi-stage area probability sampling for the survey, which creates nested structures within the survey database; (2) the nature of data collection on the topics of tobacco, alcohol, and other drug consumption, as well as diagnostic assessments with respect to clinical features associated with drug dependence and other hazards of drug involvement (e.g., recurrent legal difficulties).

2.1. Sample

The research team used a four-stage area probability sample of households to select non-institutionalized adults aged 18 years and over. The survey was conducted in five of the six geo-political regions of Nigeria: south-west (Lagos, Ogun, Osun, Oyo, Ondo, and Ekiti), south-east (Abia, Anambra, Enugu, Ebonyi, and Imo), south–south (Akwa Ibom, cross-river and rivers), north-central (Kaduna, Kogi, and Kwara), and north-east (Adamawa, Bornu, Gombe, and Yobe). Collectively, these states represent about 57% of the national population. The survey assessments were conducted in Yoruba, Igbo, Hausa and Efik languages, with due attention to translation and harmonization described below.

Selection of local government areas (LGAs) within the states and geographically defined enumeration areas (EAs) within the LGAs constituted the first and second stages of the selection process. All selected EAs were visited by research interviewers prior to the interview phase of the survey and conducted an enumeration and listing of all the household units contained therein. Respondents were selected following a complete listing of all members of a household and the use of the Kish table (Kish, 1965). An eligible member of a household had to be 18 years of age and able to speak one of the languages of the study. Only one such person was selected per household. When the primary respondent was either unavailable following repeated calls (five repeated calls were made) or refused to participate, no replacement was made within the household. On the basis of this selection procedure, face-to-face interviews were carried out on 6752 respondents. The overall response rate was just over 79%.

Field work was conducted between February 2002 and May 2003. The survey was administered in two parts: part I consisted of a core of diagnoses and was administered to all respondents; part II consisted of sections for the assessment of risk factors, consequences and correlates of disorders as well as a few disorders not included in the core. Part II was administered to respondents who had a history of past or recent part I disorders plus a probability sub-sample of other respondents. A total of 6752 respondents completed part I; 2143 completed part II.

Respondents were informed about the study and provided consent, mostly verbal but sometimes signed, before interviews were conducted. Verbal consent was the norm because of widespread illiteracy and because some respondents seemed somewhat cagy about the implications of appending their signature to a document. These survey procedures were approved by the University of Ibadan/University College Hospital, Ibadan Joint Ethical Review Board.

2.2. Measures

Diagnostic assessment were those of the World Health Organization's (WHO) Composite International Diagnostic Interview (CIDI), Version 3 administered by trained lay interviewers (Demyttenaere et al., 2004; Gureje et al., 2006). The CIDI is a fully structured diagnostic interview that is lay-administered and can generate diagnoses according to the criteria of both the International Classification of Diseases, 10th edition (ICD-10) (World Health Organization, 1992) and the Diagnostic and Statistical Manual of Mental Disorders, 4th edition

(DSM-IV) (American Psychiatry Association, 1994). We have used earlier versions of the CIDI in Yoruba. The language versions of the WMH-CIDI used in the present survey were derived, as in the earlier Yoruba versions, using standard protocols of iterative back translation and harmonization conducted by panels of bilingual experts.

The substance use sections of the WMH-CIDI first ascertain lifetime history of use. For substance users, follow-up questions are asked about recent use (in the prior 12-month), as well as, clinical features associated with drug dependence syndromes. The substances assessed were: alcohol (which includes any alcoholic beverage from industrial or non-industrial sources—e.g., palm wine); tobacco smoking (including cigarette, cigar, or pipe); sedatives; stimulants; cannabis (marijuana, hashish); cocaine; any other non-prescription psychoactive drug (which includes heroin, glue, opium, etc.).

All part I respondents received the full assessment for alcohol use. Information about the use of tobacco and other drugs was obtained from part II respondents.

2.3. Training and quality control

Considerable experience in the use of the CIDI existed in Ibadan prior to this survey. Over 1000 interviews had been conducted in previous studies in which earlier versions of the instrument had been used. The core sections of the WMH-CIDI were therefore already available in Yoruba. Further translation and adaptation were conducted, using the WHO translation guidelines. The experience in the previous translation to Yoruba came in handy in the translation exercises to Igbo, Hausa, and Efik languages.

The interviewers received 7 days of intensive training. After training, each conducted two pilot interviews in a target locality and returned for a 1-day debriefing session prior to the main survey work. Supervisors checked every questionnaire and worksheet returned to them for accuracy and consistency. They also conducted random field checks on 10% of the selected households to verify household listing, appropriate use of the Kish table, and that interviewers had conducted the interview in full. When interviewers had reported non-response, supervisors also checked on the reason for such.

2.4. Analysis

Weighted prevalence estimates and their 95% confidence intervals were calculated using Taylor series linearization with STATA 9.0, accounting for the complex survey sampling design and selection probabilities. Thus, appropriate weighting was made to all estimates for the probability of selection within household and the probability of selection into the part II sample. Prevalence estimates (and their estimated 95% confidence intervals) were also made according to sex, age group, religion, marital status, education and income.

Per capita income was calculated by dividing household income by the number of people in the household. Respondents' per capita income has been categorized by relating each respondent's income to the median per capita income of the entire sample. Thus, an income is rated low if its ratio to the median is 0.5 or less, low-average if the ratio is 0.5–1.0, high-average if it is 1.0–2.0, and high if it is over 2.0. Multiple logistic regressions, which included all background variables in the models, were run using STATA, with the complex survey sample design and selection probabilities taken into account.

We present a graphical representation of the cumulative occurrence of substance use among users, plotted against years of life since birth. The graph reflects the proportion of users who had commenced use of specified substances at different ages.

3. Results

Estimates of lifetime and past year psychoactive substance use are presented in Table 1. Alcohol was the most commonly used drug, both in terms of lifetime history and recent use (57.6% and 19.9%, respectively). Next most common were tobacco smoking and non-prescription sedative use (lifetime: 17% and 14%; past year: both 3.4%). Very small proportions had engaged

Table 1
Estimated prevalence of lifetime and past year use of alcohol, tobacco and other drugs

	Lifetime use		Past year use	
	%	95%CI	%	95%CI
Alcohol[a]	57.6	54.1, 57.7	19.9	16.4, 23.4
Tobacco	16.8	14.8, 18.8	3.4	2.6, 4.2
Sedatives	13.6	11.6, 15.6	3.4	2.2, 4.5
Cannabis	2.7	1.7, 3.7	0.4	0.2, 0.7
Stimulants	2.4	1.5, 3.2	3/2147[b]	–
Cocaine	3/2145	–	–[c]	–
Other drugs[d]	0.5	0.02, 0.9	5/2145[b]	–

[a] Alcohol use in the past year was defined as at least monthly use.
[b] Due to the small numbers, the prevalence estimate was not statistically robust; the raw numbers have been presented for illustrative purposes.
[c] No participants reported cocaine use in the past year.
[d] Included heroin, opium, LSD, inhalants, peyote.

in non-prescription drug use, and the use of cannabis, cocaine or other drugs was very rare (Table 1).

Table 2 presents estimates for cumulative occurrence of non-prescription drug use, by drug type, for population subgroups of interest. Males are more likely to have become users of these drugs, but the male–female difference is least pronounced for non-prescription use of sedatives: an estimated 16% of males had become non-prescription users of sedative drugs; the corresponding estimate for females in Nigeria is 11–12%. The male–female prevalence difference for tobacco smoking exceeds 30%; only 1.2% of the women had started to smoke tobacco (95% CI = 0.9%, 2.1%). The lifetime histories of alcohol and tobacco use were more common among older age groups, but that of sedative drugs was more common among younger age groups.

The prevalence of lifetime alcohol and tobacco use appeared to be somewhat higher among those who were currently married or cohabiting (Table 2). The prevalence of other lifetime drug use, however, did not appear to be associated with relationship status. Similarly, there did not appear to be significant associations between educational attainment and lifetime drug use.

There were differences in patterns of drug use according to religious affiliations (Table 2). Moslems were less likely to report lifetime alcohol and sedative use than Christians (Protestants or Catholics) and less than those subscribing to other religions; they did not differ for other substances. Income appeared to be related to lifetime drug use, with those who had higher incomes being more likely to report lifetime alcohol, tobacco use and non-prescription sedative use.

Table 3 presents adjusted odds ratios of lifetime substance use according to these background variables. After adjusting for all background variables examined here, males remained more likely to have ever used alcohol, tobacco and non-prescription stimulant drugs. Age remained significantly associated with lifetime alcohol and tobacco use, with older age groups more likely to report such use. Income was no longer significantly associated with substance use, with the exception of a significant association remaining for sedative use.

Table 2
Prevalence of lifetime drug use according to selected socio-demographic characteristics

Characteristics (n)	Alcohol use		Tobacco use		Cannabis use		Sedative use		Stimulant use	
	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI
Sex										
Male (3307)	69.4	66.2, 72.6	32.8	29.1, 36.5	5.4	3.3, 7.5	15.6	13.1, 18.2	4.0	2.6, 5.4
Female (3445)	46.5	42.1, 50.8	1.5	0.9, 2.1	1/1107	–	11.6	9.0, 14.3	1/1108	–
Age										
18–34 years (3717)	52.0	47.5, 56.6	9.0	6.6, 11.4	2.2	0.9, 3.4	13.1	10.4, 15.8	2.2	0.9, 3.5
35–49 years (1656)	64.3	58.8, 69.7	24.4	19.1, 29.7	4.3	2.2, 6.5	15.1	11.7, 18.4	2.2	1.1, 3.3
50–64 years (965)	65.8	58.6, 73.1	28.7	22.7, 34.8	2.5	0.5, 4.5	13.4	7.5, 19.3	3.3	1.1, 5.4
65+ years (414)	63.6	53.7, 73.5	29.7	21.4, 38.0	4/254	–	12.2	5.1, 19.3	2.6	0.5, 4.7
Marital status										
Married/cohabitating (4618)	59.3	55.8, 62.7	21.0	18.4, 23.6	2.9	1.8, 4.0	14.5	12.1, 16.8	2.6	1.8, 3.3
Other[a] (2633)	55.2	50.1, 60.4	10.5	7.4, 13.5	2.4	0.8, 4.0	12.2	8.9, 15.4	2.1	0.4, 3.8
Education										
0–11 years (4618)	58.6	54.9, 62.3	18.7	16.2, 21.3	2.6	1.2, 4.0	12.0	9.5, 14.6	2.0	0.9, 3.2
12+ years (2134)	56.0	50.0, 62.1	13.5	10.7, 16.3	2.9	1.5, 4.3	16.3	12.6, 20.0	3.0	1.7, 4.3
Religion										
Protestant (1067)	62.2	57.7, 66.6	15.1	12.9, 17.2	2.6	1.5, 3.6	14.9	11.8, 18.0	2.4	1.3, 3.6
Catholic (195)	69.6	60.6, 78.7	15.1	9.1, 21.1	2.8	1.3, 4.4	16.5	10.0, 23.0	1.7	0.2, 3.2
Moslem (559)	46.4	42.0, 50.9	20.5	15.6, 25.4	2.9	0.7, 5.1	10.7	8.4, 13.0	2.6	0.8, 4.4
Other (49)	70.7	45.4, 96.0	5/22[b]	–	1/25	–	4/25	–	–[c]	–
Income[d]										
Low	51.7	44.2, 59.1	11.8	8., 14.8	2.7	0.7, 4.8	8.7	4.7, 12.7		–
Low-average	54.9	49.5, 60.3	14.6	10.6, 18.6	2.4	0.4, 4.4	10.3	6.7, 14.0	2.2	0.2, 4.3
High-average	58.3	54.0, 62.7	20.2	16.5, 23.8	2.6	1.0, 4.2	13.6	9.8, 17.3	2.7	1.2, 4.2
High	66.1	61.2, 71.0	20.5	16.6, 24.4	3.1	1.4, 4.9	22.2	16.5, 28.0	3.6	2.1, 5.1

[a] Includes separated, widowed, divorced, never married.
[b] Due to the small numbers, the prevalence estimate was not statistically robust; the raw numbers have been presented for illustrative purposes.
[c] Indicates no participants in this category reported lifetime use.
[d] Categories as described in Analysis section.

In general, between 20–25% of lifetime users reported past year use. Other than sedative use, which was similar among men and women, men were considerably more likely to have a history of both lifetime and past year use of most substances. In particular, cannabis use occurred more predominantly among males. Table 4 shows past year prevalence estimates, and adjusted odds ratios, of drug use and adjusted odds ratios are presented according to these background demographics. As can be seen, sex differences also existed across past year alcohol and tobacco use, but no difference existed for non-prescription sedative use. There appeared to be no age differences for past year use of any of these drugs, with the exception of higher rates of tobacco use among middle aged adults compared to young adults.

Education and income categories were not significantly related to past year drug use, although the proportion of substance use tended to be higher among those in higher income categories. Finally, differences in drug use were observed according to religious affiliation: Moslems were less likely than Christians (Catholics or Protestants) to have used alcohol or sedatives in the past year; and more likely than the latter two groups to have used tobacco (Table 4).

The lifetime prevalence of features of DSM-IV abuse and dependence is presented in Table 5. Clearly, the proportions reporting problems were low for alcohol and other drugs; but among users of these drugs, proportions of problems were similar for both alcohol and other drugs. Male lifetime users had higher proportions of all problems than females.

Fig. 1 shows the cumulative occurrence of drug use among users, plotted against years of life since birth. The figure shows that the age of first use clearly differed across drugs. The figure reflects information obtained in 2002–2003 from respondents who had been born by 1984. About 25% of lifetime users of alcohol had started its use by the age of about 12 years; for tobacco and cannabis, this proportion was achieved at about the age of 15 and 18 years, respectively. First use of prescription drugs was right-shifted with most first use occurring between age 20 and 40 years.

4. Discussion

In this large study of a representative sample of Nigerian adults, we found lifetime proportions of drug use as follows: alcohol 58%, tobacco 17%, sedatives 14%, stimulants 2.4%, and 3%, cannabis.

The studies conducted by Obot in the north-central part of Nigeria are the closest with which our results can be compared

Table 3
Associations of socio-demographic characteristics with lifetime drug use

	Alcohol use		Tobacco use		Cannabis use		Sedative use		Stimulant use	
	OR[a]	95%CI	OR[a]	95%CI	OR[a]	95%CI	OR[a]	95%CI	OR[a]	95%CI
Sex										
Male	3.0	2.5, 3.7	14.7	25.4, 68.5	79.3	10.1, 621.3	1.3	0.9, 1.7	4.6	1.5, 14.1
Female	1	–	1	–	1	–	1	–	1	–
Age (years)										
18–34	1	–	1	–	1	–	1	–	1	–
35–49	1.5	1.1, 2.1	3.64	2.2, 6.1	2.0	0.8, 4.7	1.1	0.7, 1.7	0.9	0.5, 1.9
50–64	1.6	1.1, 2.3	4.97	3.1, 7.9	1.1	0.4, 2.9	1.0	0.5, 1.8	1.6	0.7, 3.8
65+	1.5	0.9, 2.4	6.24	3.4, 11.6	0.5	0.1, 2.1	1.0	0.5, 2.0	1.3	0.5, 3.8
Marital status										
Married/cohabitating	1.0	0.8, 1.4	1.2	0.8, 1.9	1.2	0.5, 3.1	1.2	0.8, 1.7	1.2	0.5, 2.8
Other[a]	1	–	1	–	1	–	1	–	1	–
Education (years)										
0–11	1	–	1	–	1	–	1	–	1	–
12+	0.8	0.6, 1.1	0.7	0.5, 1.01	0.9	0.4, 2.2	1.3	0.8, 2.0	1.5	0.6, 3.6
Religion										
Protestant	1	–	1	–	1	–	1	–	1	–
Catholic	1.6	0.97, 2.7	1.06	0.60, 1.9	1.4	0.7, 3.1	1.3	0.8, 2.1	0.8	0.3, 2.1
Moslem	0.5	0.3, 0.6	1.25	0.8, 1.9	0.9	0.4, 1.8	0.7	0.5, 1.1	1.0	0.4, 2.4
Other	1.9	0.5, 6.8	0.9	0.2, 4.3	0.8	0.1, 7.3	0.4	0.1, 1.6	–	–
Income										
Low	1	–	1	–	1	–	1	–	1	–
Low-average	1.2	0.8, 1.9	0.96	0.59, 1.56	1.08	0.36, 3.22	1.2	0.7, 2.1	2.3	0.4, 14.3
High-average	1.2	0.9, 1.7	1.41	0.92, 2.16	0.95	0.42, 2.17	1.6	0.8, 2.9	2.3	0.5, 11.6
High	1.5	1.02, 2.4	1.10	0.70, 1.72	1.28	0.55, 3.00	2.6	1.4, 5.0	2.7	0.6, 12.6

[a] Adjusted OR from multiple regression models: each model adjusted for all other variables in table.

(Obot, 1990, 1993). Studying a large sample of "adult heads of households" (primarily male), he reported much higher levels of alcohol and tobacco use than we have reported here. For example, he reported that 22.6% of his sample smoked regularly, a level that is considerably higher than our finding of 16.8% of lifetime use (Obot, 1990). Even though the study was conducted about 15 years before the present one and drug use trends might have changed significantly during the interval, we suspect that the differences in sample selection may be the main reason for these very divergent rates. Both by our sampling procedure and the statistical adjustments made to reflect the general population demographics, our results are more likely to be closer to
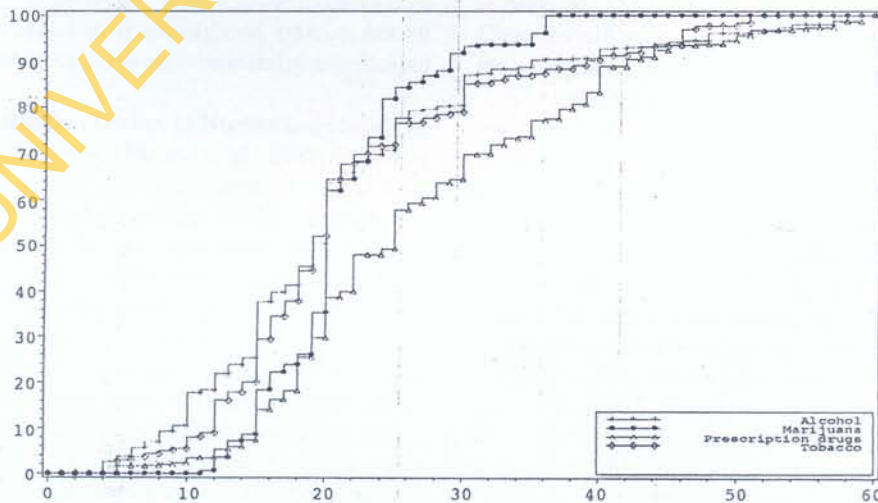

Fig. 1. Age of initiation of psychoactive drug use among lifetime users of alcohol, marihuana, prescription drugs and tobacco.

Table 4
Associations of socio-demographic characteristics with past year alcohol, tobacco and sedative use

	Alcohol use				Tobacco use				Sedative use			
	%	95%CI	OR[a]	95%CI	%	95%CI	OR[a]	95%CI	%	95%CI	OR[a]	95%CI
Sex												
Male	32.7	27.8, 37.6	10.1	5.8, 17.5	6.7	5.2, 8.3	36.81	12.6, 107.6	3.9	2.4, 5.4	1.4	0.7, 2.7
Female	5.3	2.5, 8.1	1	–	0.2	0.0, 0.4	1	–	2.8	1.3, 4.4	1	–
Age (years)												
18–34	16.7	12.4, 21.0	1	–	2.1	1.0, 3.2	1	–	4.2	2.5, 6.0	1	–
35–49	25.7	19.6, 31.9	1.4	0.9, 2.3	4.4	2.3, 6.5	1.92	0.59, 6.24	1.9	0.6, 3.2	0.4	0.2, 0.96
50–64	23.6	17.3, 29.8	1.2	0.8, 1.8	7.1	3.6, 10.7	2.75	1.01, 4.46	9/369	–	0.7	0.2, 2.0
65+	13.8	8.5, 19.1	0.6	0.3, 0.98	2.2	0.7, 3.8	0.82	0.25, 2.67	1.8	0.05, 3.6	0.4	0.1, 1.3
Marital status												
Married/cohabitating	21.6	18.5, 24.8	1.2	0.8, 1.9	4.1	3.2, 5.0	1.28	0.39, 4.23	3.1	1.7, 4.5	1.2	0.5, 2.8
Other[b]	16.9	11.3, 22.5	1	–	2.3	0.6, 4.0	1	–	3.7	1.6, 5.9	1	–
Education (years)												
0–11	20.4	17.1, 23.8	1	–	4.2	2.9, 5.5	1	–	2.8	1.4, 4.1	1.2	0.5, 2.5
12+	18.9	12.8, 24.9	0.6	0.4, 1.0	2.0	1.1, 3.0	0.50	0.23, 1.10	4.4	1.8, 7.0	1	–
Religion												
Protestant	22.9	17.9, 27.9	1	–	2.2	1.3, 3.1	1	–	4.1	2.7, 5.6	1	–
Catholic	23.2	13.0, 33.5	1.4	0.7, 2.9	9/207[c]	–	1.62	0.52, 5.02	4/208[c]	–	1.2	0.3, 4.3
Moslem	13.8	10.8, 16.9	0.4	0.3, 0.6	5.1	3.3, 7.0	1.90	1.02, 3.56	1.8	0.6, 2.9	0.4	0.2, 0.9
Other	30.7	0.4, 61.1	1.6	0.5, 5.5	4/25[c]	–	11.15	2.51, 49.57	–	–	–	–
Income[d]												
Low	11.4	6.7, 15.9	1	–	3.1	0.8, 5.5	1	–	2.5	0.1, 4.8	1	–
Low-average	12.6	9.5, 15.7	0.9	0.5, 1.9	2.7	1.2, 4.1	0.59	0.20, 1.69	3.0	1.1, 4.9	1.3	0.4, 4.4
High-average	16.2	12.5, 19.9	1.0	0.6, 1.9	3.8	1.8, 5.8	0.86	0.27, 2.73	3.3	1.0, 5.5	1.3	0.3, 5.1
High	22.4	17.5, 27.4	1.6	0.96, 2.8	4.0	2.4, 5.5	0.77	0.31, 1.92	4.8	2.4, 7.1	1.8	0.5, 5.9

Indicates no participants in this category reported lifetime use.

[a] Adjusted OR from multiple regression models: each model adjusted for all other variables in the table.

[b] Includes separated, widowed, divorced, never married.

[c] Due to the small numbers, the prevalence estimate was not statistically robust; the raw numbers have been presented for illustrative purposes.

[d] Based upon WMHS categories.

the extant national drug use profile of the Nigerian adult population than those presented by Obot. Nevertheless, our results are similar to previous findings in regard to the male predominance among drinkers and smokers (Obot, 1990, 1993). We found higher education to be related with a lower likelihood of both lifetime and past year use of alcohol and tobacco, but no such trend was apparent in regard to economic status as indicated by income.

In line with many previous studies in Nigeria and elsewhere in Africa (Abiodun et al., 1994; Odejide et al., 1987; Flisher et al., 2003), we found that users of drugs commonly start in adolescence and young adulthood. About half of lifetime users had commenced use by the age of 20 years for alcohol, cannabis, and tobacco, and 25 years for non-prescription use of sedatives and stimulants. In our setting, alcohol tends to gain early prominence followed by tobacco and then by cannabis.

Lifetime use of alcohol was higher among persons aged 35–64 years than it was among those aged 18–34 years. However, past year use remained elevated (relative to young adults) only among those aged 35–49 years. A cross-sectional study does not permit a clear inference about trend; however, the pattern of association of alcohol use could suggest a tendency

towards abstinence in the fifth decade of life and onwards. This may also be related, however, to differential mortality of drug users, among whom it is known that there are higher mortality rates. Alternatively, it could reflect cohort or period differences in drug use. The pattern for tobacco was also somewhat similar. Clear sex differences existed for the use of all drug types with the exception of non-prescription sedative.

Moslems had a significantly lower likelihood of both lifetime and past year use of alcohol among compared to persons of other faiths. The Islamic injunction against the use of alcohol seems to be having a strong deterrent effect among its adherents in Nigeria. It is interesting to note that Moslems were no less likely than those of other religions to use other drugs, including cannabis and stimulants, both of which are illegal in Nigeria. It may be that what is at play here is the relative potency of religious belief rather than fear of legal (or even societal) sanctions.

We presented here the prevalence of features of alcohol and other drug DSM-IV dependence, rather than diagnosis (Gureje et al., 1996, 1997; Room, 2006). The most common feature was failure to fulfil role obligations as a result of drug use; legal problems were very infrequently reported. The most common feature of alcohol and other drug dependence was impaired con-

Table 5
Lifetime prevalence of clinical features of alcohol and other drug DSM-IV abuse and dependence

| | Alcohol | | | | | | | | Other drugs[a] | | | | | | | |
| | Population | | Users | | Male lifetime users | | Female lifetime users | | Population | | Users | | Male lifetime users | | Female lifetime users | |
	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI
Abuse features																
Use resulted in failure to fulfill role obligations	2.4	1.6, 3.2	4.1	2.8, 5.5	6.7	4.5, 9.0	4/559		0.7	0.3, 1.0	4.0	1.9, 6.0	6.0	2.8, 9.2	2/154	
Recurrent use in hazardous situations	1.0	0.6, 1.3	1.7	1.1, 2.3	2.9	1.8, 4.0	–		6/2147		6/402		6/248		–	
Recurrent legal problems	0.2	0.02, 0.3	0.3	0.03, 0.5	0.4	0.05, 0.8	–		3/2147		3/402		3/248		–	
Continued use despite problems	0.6	0.3, 0.9	1.1	0.6, 1.6	1.9	1.0, 2.8	–		0.4	0.04, 0.7	2.1	0.3, 3.8	2.5	0.09, 4.9	1/154	
Dependence features																
Tolerance	0.8	0.4, 1.1	1.3	0.6, 2.0	2.2	1.1, 3.4	–		0.3	0.04, 0.6	1.9	0.3, 3.5	3.0	0.5, 5.6	–	
Withdrawal or use to avoid withdrawal	0.8	0.4, 1.2	1.4	0.7, 2.1	2.4	1.1, 3.6	1/559		0.3	0.09, 0.6	1.9	0.4, 3.3	2.7	0.5, 4.9	1/154	
Taken in larger amounts or longer	1.8	1.2, 2.4	3.1	2.0, 4.1	5.2	3.4, 7.0	1/559		0.4	0.07, 0.7	2.1	0.5, 3.8	3.1	0.5, 5.8	1/154	
Desire, attempts to cut down use	1.4	0.8, 2.0	2.4	1.3, 3.5	4.1	2.2, 5.9	–		0.3	0.004, 0.6	1.7	0.1, 3.2	2.7	0.2, 5.2	–	
Much time spent obtaining, using or recovering from use	0.8	0.4, 1.3	1.5	0.7, 2.2	2.5	1.2, 3.8	1/559		5/2147		5/402		5/248		–	
Social, occupational or recreational activities reduced	0.8	0.3, 1.3	1.3	0.5, 2.2	2.3	0.8, 3.7	–		4/2147		4/402		4/248		–	
Continued use despite harm caused by use	0.6	0.2, 0.9	1.0	0.4, 1.6	1.7	0.7, 2.8	–		0.2	0.03, 0.4	1.2	0.2, 2.2	1.9	0.3, 3.6	–	

Confidence intervals calculated using Taylor series linearization, adjusting for clustering using sampling strata and primary sampling units.
[a] Other drugs includes: cannabis, cocaine, non-prescription use of sedatives or stimulants, and other drugs.

trol over use of the drug; for alcohol, the least common feature was tolerance, and for other drugs, reduction in role functioning.

Even though the population prevalence of features of dependence on alcohol was higher than that of other drugs, there was no difference among users of these drugs. That is, our data suggested that similar proportions of alcohol and other drug users experienced problems related to their psychoactive drug use. Clearly, while at a community level, problems related to alcohol may be higher, problems occur similarly for users of other drugs.

All drug-related problems were more common among males, with many being exclusively present only among them. This observation is similar to that made in a previous study of alcohol-related problems among primary care attendees in which it was noted that most identified cases of alcohol problems were males (Gureje et al., 1992). This may relate to the observation made in an earlier study in primary care that, even though the prevalence of sedative use by males and females were similar, females were more likely to have been using the drugs for a much longer period than males (Gureje and Obikoya, 1990).

Heavy episodic drinking, rather than regular moderate drinking, is common among users of alcohol in Nigeria (and in most parts of sub-Saharan Africa) (Room et al., 2002; Parry, 2005). This pattern of drinking is more likely to be associated with intoxication, accidents, and violence (Rehm et al., 1999; Parry, 2005). This profile of alcohol-related problems accounts for the society burden resulting from drinking in Africa and much of the developing world (Room et al., 2002). It might be expected, then, that problems related to regular, heavy drinking, such as those of features of DSM-IV alcohol dependence, might be less frequent than problems related to risky binge drinking, as assessed by DSM-IV abuse features. The present study found suggestive evidence that this was the case. Symptoms such as withdrawal and tolerance to the effects of alcohol were reported by only around 1%; whereas about 4% of lifetime users experienced a failure to fulfil role obligations as a result of recurrent alcohol use. Our observation is in accord with findings from epidemiological studies of clinical samples in Nigeria where dependence, as a discrete diagnostic construct, is often found to be relatively rare and often predominantly a male problem (Gureje et al., 1992).

Two important limitations are of note. First, we have used self-reports to assess drug use; there may have been differential reporting biases for self-reported illegal versus more socially acceptable drug use such as tobacco and alcohol. There has been no study conducted specifically in Nigeria to assess the extent of underreporting of illegal drug use; but others have found self-report to be an acceptable method for collecting information on substance use (Darke, 1998). Second, our survey was limited to only about 57% of the national population. Nigeria is a multi-ethnic country and the sections not covered by our survey might have different profile of substance use than what we report here. Nevertheless, this is the largest survey of its kind ever conducted on substance use in Nigeria. Also, we have used appropriate weighting adjustments to approximate our samples, both the part I and II samples, to the national age and sex distribution. We are therefore confident that, within the margins of error reported, the

profile of drug use we have reported reflects the extant profile for the majority of adult Nigerians.

5. Conclusions

In this first large-scale study of the use of a broad range of drugs by adult Nigerians, we found alcohol to be the most commonly used drug, and tobacco and sedatives to have about similar level of use. Cannabis use occurs, but is not prevalent. Males were most likely to use any of the drugs investigated. Use was commonly initiated in early adolescence to early adulthood. Although a relatively under-recognised area, problems related to the use of sedatives and stimulants clearly cause harm for users and may constitute a hitherto unrecognised societal burden. Future research on possible birth cohort differences in drug use appears warranted, given the age differences observed in this study.

Acknowledgements

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