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Alcohol Consumption Patterns and Associated Factors in Ekiti State, Nigeria: a State-wide, Cross-Sectional Study

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Key words

Alcoholism; psychotropic drugs: alcohol drinking

Abstract

Aim: The study aimed to determine the prevalence, pattern, and factors associated with alcohol use among adults in Ekiti State. **Subjects and Methods:** The survey was a cross-sectional, household-based, using a four-stage, multistage sampling technique. Using the Geographic Information System, 5000 adults were selected and interviewed using the WHO STEPS Instrument on mobile tablets and Open Data Kit (ODK). **Results:** More than 50 % of the 4894 participants recruited for the study were between the ages of 18 and 44 years. About three-quarters of the participants were females (74.1 %). Approximately 24 % of the respondents reported ever taking alcohol, with men accounting for a higher proportion of lifetime and current use (52.1 % and 38.5 %, respectively) than women (14.1 % and 7.2 %, respectively). Daily consumption was higher among males (7.6 %) compared to females (3.9 %). In comparison to women, more than 10 percent of men admitted to abandoning their social responsibilities due to alcohol consumption. The prevalence of early morning alcohol consumption is much higher among men (13.3 %) than among women (1.9 %). About 2.2 % of respondents quit alcohol consumption for health reasons, with men being more likely to do so than women (6.7 % versus 1.2 %, respectively). **Conclusion:** The prevalence of alcohol use is high in Ekiti state, particularly among males. Men are also more likely to consume alcohol daily, in larger quantities, and are more likely to stop alcohol consumption due to health issues.

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Introduction

Alcohol is a psychoactive substance with a strong potential for dependence, making it the most commonly used psychoactive substance in Nigeria [1we extend the description to include the features of substance dependence.\nMethod: 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]. However, alcohol consumption in most countries, including Nigeria, is increasing due to its social and cultural acceptability [2]. According to the World Health Organization (WHO), about 2.3 billion people are current alcohol drinkers, with males and those in the 15 - 49 age group accounting for higher numbers than other groups. The worldwide Alcohol per capita (APC) consumption is 6.4 litres [2].

In Nigeria, there has been a rapid increase in alcohol production, importation and consumption across all age groups [2] Factors contributing to this increase include aggressive marketing activities of leading players resulting in greater availability, even in small convenient packs, social and cultural acceptability and inadequate/poor enforcement of policy on alcohol consumption [2].

Apart from industrially brewed beer and wines, in various concentrations, alcohol is consumed traditionally in various forms, especially in rural areas of Nigeria. These include palm wine (whitish sap from palm tree) with 4 % alcohol; Ogogoro (also known as kinkana and apetesi), a gin-like drink distilled from oil or raffia palm wine with 40% alcohol, and oti baba or oti 'ka brewed from Guinea corn [3-5].

High prevalence rates of alcohol consumption have been reported not only in urban centres but also among people in rural areas of Nigeria [5]. In the 2003 Nigeria stepwise report, 35.4 % of respondents in urban areas reported having ever consumed alcohol-containing drinks, such as wine, beer, spirits/local brew, fermented cider etc. A similarly high rate of 27.1 % was reported among respondents from rural areas [6].

Alcohol use is associated with about 3 million deaths each year globally, as well as disabilities and poor health for millions of people [2]. According to the WHO, harmful alcohol use is linked to 7.1 % and 2.2 % of the global burden of disease for males and females, respectively. Alcohol is the leading risk factor for premature mortality and disability among those aged 15 to 49 years, accounting for 10 % of all deaths in this age group [2].

Alcohol has also been linked with many chronic diseases. Studies from different parts of the world reported that alcohol consumption, especially heavy drinking, is associated with pancreatitis, liver cirrhosis, tuberculosis, hypertension, diabetes and other cardiovascular diseases related morbidity and mortality, pneumonia, injuries, malignancies, and psychiatric morbidity [7-9]. Alcohol is also a factor in a large proportion of injuries and road accidents in Nigeria [10]. The World Health Organization (WHO) reports indicate that the global alcohol related mortality from cancer, liver cirrhosis and injury accounted for 2.8 % of all deaths, 1.3 % for women and 4.1 % for men globally [11].

The aim of the study was to determine the pattern of alcohol use among adults aged 18 years and above in the state. It is important to investigate alcohol consumption patterns and prevalence in this area, as it could provide valuable insights into the larger Nigerian context and contribute to the development of targeted interventions.

Subjects and Methods

The survey was a cross-sectional, household-based survey with a four-stage multistage sampling design. The study targeted adults aged 18 years and above living in residential households, including overnight visitors. Ekiti State, located in Southwestern Nigeria is a predominantly rural region with a population of over 3 million people. The sampling frame for this study consisted of all households in Ekiti State, comprising 176 wards, containing 2,457 settlements, and 3,270,798 individuals. This was based on the WHO STEPS Manual, which adjusts for number of age-group and sex estimates, design effect, and estimated non-response. The World Health Organization (WHO) provides a Microsoft Excel sheet for calculating sample sizes based on the methodology. Using it, our sample size estimate was 4,896, which we approximated to 5000.

A four-stage multistage sampling technique was used for the study. All 16 Local Government Areas (LGAs) in Ekiti State were included in the sample. The first stage of sampling consisted of randomly selecting 50 % of the wards within each LGA, with the urban/rural distribution of the selected wards proportional to their population distribution in the 2006 census.

Following the first stage sampling, a list of all settlements within the selected wards was compiled, and three settlements were randomly selected from each ward using a list of computer-generated random numbers. In the third stage, 5000 households were selected by simple random sampling for enumeration. Finally, one individual from each selected household was randomly picked for enrolment by balloting in the survey for the fourth stage.

High-resolution imagery with the capacity to provide spatial information at resolutions as low as 1m was utilized, with Google Earth Pro serving as the primary tool. Google Pro offers high spatial and radiometric quality for most areas in Nigeria, and QGIS, an open-source software, was employed for the procedure. First, the study area was delineated from the imagery using boundary coordinates and subsequently delineated into local government areas. Second, each LGA was delineated into ward levels, with each ward visualized to the household (build-

ing) level. Next, 50 % of the wards in each LGA were selected, and the buildings were assigned distinct identification numbers. The position (x, y coordinates) of the selected houses was extracted into an attribute table. Finally, 5,000 house parcels were targeted for identification across the 16 local government areas in the state.

The survey used a semi-structured interviewer-administered questionnaire that had been pre-tested. The questionnaire was adapted from the alcohol section of the WHO STEPs manual and aimed to collect data on the respondents' demographic characteristics and their current and past alcohol consumption patterns.

In terms of data analysis, we presented univariate analysis as percentages and used Student's t-test to analyse continuous variables in our bivariate analysis. Continuous variables were presented as mean values with standard deviations, while categorical variables were analysed using Pearson's chi-square test and presented as frequency with percentages. We performed all data analyses using IBM SPSS version 25 for Windows (IBM Corp., Armonk, NY). Dataset was reposited on the Open Science (OSF) Website [12-13].

Results

A total of 4894 participants completed the questionnaire. Participants between 18 and 44 years accounted for more than 50 % of the participants (Table1). About three-quarters of the participants were female (74.1 %). More than a third (37.0 %) of the participants completed secondary/high school education. Most of the participants (71.6 %) reported being currently married. More than two-thirds (69.3 %) of the participants reported being self-employed. Almost half of the respondents (44.3 %) reported earning less than 50,000 Naira monthly.

Table 1. Sociodemographic characteristics

Variable	Frequency	Percentage (%)
Age		
18-29	1044	21.3
30 – 44	1516	31.0
45 – 59	1081	22.1
60 – 69	696	14.2
70 +	557	11.4
Sex		
Male	1266	25.9
Female	3624	74.1
Education		
No formal schooling	788	16.1
Less than primary school	206	4.2
Primary school completed	1268	25.9
Secondary/high school completed	1811	37.0
College/ University completed	792	16.2
Post graduate degree completed	29	0.6
Marital status		
Never married	592	12.1
Currently married	3504	71.6
Separated/ Divorced	78	1.6
Widowed	720	14.7
Employment status		
Government employee	362	7.4
Non-government employee	176	3.6
Self-employed	3392	69.3
Unpaid	964	19.7
Income		
Less than 20,000	1262	25.8
20,000 – 50,000	896	18.3
51,000 – 100,000	695	14.2
101,000 – 150,000	676	13.8
>150,000	1145	23.4

Distribution of Alcohol Consumption

The distribution of alcohol consumption among the respondents is shown in table 2. Approximately 24 % of the respondents reported ever consuming alcohol, and a higher proportion of men reported being lifetime and current consumers of alcohol (52.1 % and 38.5 %, respectively) compared to females (14.1 % and 7.2 %, respectively). Three in four respondents reported lifetime abstinence from alcohol, with the percentage of abstinence among women being nearly twice that among men (85.9 % and 47.9 %, respectively). Among men, the highest consumers of alcohol were in the 60 - 69 age group, constituting 58.2 % of the total.

Regarding the alcohol consumption patterns of the study participants in the seven days before the interview, almost 90 % of all participants denied consuming alcohol during that period. Daily consumption was higher among males (7.6 %) than among females (3.9 %). More than 10 % of the males reported consuming alcohol on three or more days in the week before the interview, compared to about 6 % of females.

Among current drinkers, respondents reported consuming an average of 3.67 standard drinks in the past 7 days. Men reported consuming an average of 4.82 standard drinks, while women reported consuming an average of 1.78 standard drinks. Among all respondents, the 45 - 59 years age group had the highest mean number of standard drinks per day in the 7 days preceding the interview.

Among those who reported drinking alcohol in the 12 months preceding the interview, the pattern of alcohol consumption varied across both sexes. More than two-thirds of the respondents (67.9 %) drank less than 1-2 days per week, while 14.6 % (20.6 % of men and 3.4 % of women) drank on a daily basis. Overall, about one in every three respondents who drank alcohol in the past 12 months reported consuming it at least once every other day.

Table 2. Alcohol consumption status of all respondents

Age Group	N	% Lifetime use	P	N	% Drank in past 12 months	P	N	% Past 12 months abstainer	P	N	% Lifetime abstainer	P
Men												
18 - 29	290	45.5	0.067	290	35.5	0.000	290	64.5	0.000	290	54.5	0.067
30 - 44	337	51.6		337	43.6		337	56.4		337	48.4	
45 - 59	281	54.4		281	40.9		281	59.1		281	45.6	
60 - 69	208	58.2		208	41.8		208	58.2		208	41.8	
70 +	150	52.7		150	23.3		150	76.7		150	47.3	
Total	1266	52.1		1266	38.5		1266	61.5		1266	47.9	
Women												
18 - 29	754	15.5	0.376	754	8.9	0.116	754	91.1	0.116	754	84.5	0.376
30 - 44	1179	14.3		1179	7.3		1179	92.7		1179	85.7	
45 - 59	800	14.5		800	7.2		800	92.8		800	85.5	
60 - 69		12.5		488	6.6		488	93.4		488	87.5	
70 +	407	11.8		407	4.7		407	95.3		407	88.2	
Total	3628	14.1		3628	7.2		3628	92.8		3628	85.9	
Both Sexes												
18 - 29	1044	23.9	0.375	1044	16.3	0.002	1044	83.7	0.002	1044	76.1	0.375
30 - 44	1516	22.6		1516	15.4		1516	84.6		1516	77.4	
45 - 59	1081	24.9		1081	16.0		1081	84.0		1081	75.1	
60 - 69	696	26.1		696	17.1		696	82.9		696	73.9	
70 +	557	22.8		557	9.7		557	90.3		557	77.2	
Total	4894	23.9		4894	15.3		4894	84.7		4894	76.1	

Table 3. Mean number of occasions with at least one drink in the past 30 days among current (past 30 days) drinkers

Age Group (years)	Men			Women			Both Sexes		
	N	Mean	95% CI	N	Mean	95% CI	N	Mean number	95% CI
18 - 29	103	16.05	11.20 - 21.15	67	19.70	12.24 – 27.5	170	17.49	13.26 – 22.08
30 - 44	147	12.20	8.73 – 16.10	86	11.94	7.00 – 17.59	233	12.10	9.00 – 15.47
45 - 59	115	17.76	13.15 – 22.75	58	13.88	7.30 – 20.78	173	16.46	12.60 – 20.69
60 - 69	87	14.23	9.01 – 20.00	32	23.38	12.07 – 35.3	119	16.69	11.74 – 21.97
70 +	35	11.00	5.70 – 17.53	19	16.95	4.72 – 32.04	54	13.09	7.28 – 19.81
Total	487	14.60	12.45 – 16.97	262	16.11	12.58 – 19.79	749	15.13	13.23 – 17.25

Severity of Alcohol Consumption

Table 3 shows the mean number of occasions with at least one drink in the past 30 days among current (past 30 days) drinkers. The mean number of drinking occasions among current consumers of alcohol in the month prior to the interview was 15.1. The 18 - 29 age group had the highest mean number of drinking occasions (mean 17.5). However, the number of occasions was higher among females (16.1) than among males (14.6). Women within the 60 - 69 age group had the highest mean number of drinking occasions (23.4).

Regarding the number of standard drinks per drinking occasion among current (past 30 days) drinkers. Male respondents who were current consumers of alcohol had more than twice the mean number of standard drinks consumed by females on any occasion. (2.7 vs 1.0).

Finally, a higher proportion of men (32.6 %) had more than 6 standard drinks on any occasion than women (23.7 %). Among all the respondents, the 45 - 59 years age group had the highest proportion of those who drank more than 6 standard units on any occasion.

Adverse Effects of Alcohol Consumption

In terms of neglecting social responsibilities due to drinking during the past 12 months, 92 % (97.7 % of women and 88.8 % of men) reported never failing to do what was normally expected of them during this period. About 4 % of the men admitted to daily neglect of their social responsibilities attributable to drinking alcohol, while only 0.4 % of women reported doing so. Early morning alcohol consumption is considered to be a sign of alcohol addiction Analysis of the need for a first drink in the morning to get going after a heavy drinking session during the past 12 months, shows that 9.3 % of past 12-month drinkers reported needing early morning alcohol.

The prevalence of early morning alcohol use is much higher in men (13.3 %) than in women (1.9 %). A substantial proportion of people across both sexes between 60 and 69 years (12.8 %) compared to other age groups reported needing alcohol in the morning.

The social impact of alcohol use by family members or friends on our respondents was found to be minimal, as the majority of respondents (98.3 %) reported no social problems due to the drinking habits of others. However, men were more than twice as likely as women to experience such problems (3 % versus 1.2 %, respectively).

Discussion

This state-wide study is the largest study on epidemiology of Alcohol use conducted in Ekiti state, Southwest Nigeria. The rate of lifetime consumption of alcohol among the participants was 23.9 %, which is significantly lower than the 56 % - 64 % range reported from Nigeria [1,6,14-15]. One possible explanation for this lower prevalence could be the higher population of women among the participants, who accounted for about three-quarters of the total sample. The lifetime rate of alcohol use was 52 % among men and 14.1 % among women, which is consistent with the higher prevalence of alcohol use among males reported in several previous studies [1,4,9,16]. This difference may be attributed to sociocultural factors that make alcohol use more socially acceptable for men, and the fact that women tend to become intoxicated more easily than men, which limits the quantity of alcohol they can consume [6,17]. This lifetime prevalence rate observed in this study among males is however comparable with the overall prevalence rate of between 56-64 % observed in studies with predominantly male subjects [1,6,14-15].

The combined prevalence of current alcohol use in this study was found to be 15.3 %, with higher rates among males. Gureje and associates also reported similar findings of a 14 % prevalence of current use of alcohol in a nationwide study on alcohol and drug use [1]. In contrast, Laosebikan and associates found a much higher prevalence of 27.3 % in their study while, Adewuya and associates reported a very high rate of 57.9 % [14,15]. These differences in the prevalence rates may be because these studies with higher rates were conducted in predominantly urban areas in contrast to this and Gureje and associates studies that were conducted in urban and rural areas.

Males reported a higher rate of current alcohol use compared to females, which is not unexpected given that men also report higher lifetime use. However, there was a marked decline in current alcohol use by participants above 70yrs. This decline in the rate of current alcohol use with increasing age was also reported by other researchers [6]. This decline may be due to the possible complications of alcohol use that may have set in at that age or a reduction in purchasing power of the elderly.

We observed that men consumed more alcohol and drank on more days of the week than women, as was also reported by Gureje and associates and other studies [1,6,14]. It is not surprising that most of the respondents reported non-consumption of alcohol on a daily basis, as previous studies had also reported that heavy episodic drinking, rather than regular moderate drinking is common among alcohol users in Nigeria [9]. This pattern of drinking is more likely to be associated with intoxication, accidents, and violence [7,9].

Although we observed that most study participants had not neglected their social responsibilities despite their alcohol consumption, males were still more likely to abandon their social responsibility compared to women. Other studies have also reported that most identified cases of alcohol problems were males [1,6,17].

This study observed that men were more likely than women to stop or reduce their alcohol consumption due to health reasons. This may be because more men are more likely to develop health complications due to excessive alcohol consumption compared to women. This is supported by researchers who reported that the risk of developing alcohol-related problems is higher among older men compared to older women [18,19].

Although this study did not use a standard instrument to screen for alcohol use disorders, we however asked about the need for an early morning drink in order to function effectively, which is suggestive of an AUD, and found that about 10 % of participants may be at risk of having an AUD. This rate of probable AUD is higher than the 7.1 % reported by Adewuya and associates in the Lagos mental health survey, although much higher prevalence rates were reported by other studies [6,15].

In conclusion, the findings of this study indicate that alcohol use is a significant public health issue in Ekiti state, with a high prevalence of lifetime and current alcohol use, particularly among men. Men were found to consume alcohol more frequently and in larger quantities than women. They were also more likely to experience social complications related to alcohol use and to reduce their alcohol consumption due to health issues. These results highlight the need for targeted interventions to address the harmful effects of alcohol use, especially among men.

One major limitation of this study is that it relied on self-reported alcohol use by the participants, which may be subject to biases such as recall bias or individuals not fully disclosing their drinking patterns. However, previous local and international studies have found self-report to be an acceptable form of collecting information on alcohol use [1,15]. Lastly, the observational, cross-sectional design of the study does not support making causal inferences.

However, this study has some strengths, such as the large sample size obtained across all the local government areas of the state and the use of GIS to select participants, which helped to reduce selection bias.

We recommend that government should increase community advocacy efforts to educate people about the dangers of alcohol consumption. Additionally, there should be strict enforcement of policies to curb sales and use of alcohol especially in motor parks and among youths.

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Conflict of Interest

None to declare.

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