

Original Article

A rural and urban cross-sectional study on alcohol consumption among adult Nigerians in Abia state

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ABSTRACT

Background: The abuse or harmful use of alcohol is a well known risk factor for disability and premature mortality. **Aim:** The study sought to describe the pattern of alcohol consumption in Abia state, Nigeria. **Methods:** The study was a cross-sectional and predominantly descriptive study aimed at ascertaining the pattern of alcohol consumption in the state. Participants in the study were recruited from the three senatorial zones in the state. In each of the zones, urban and rural communities were chosen for the study. Data on alcohol consumption and other socio demographic data were collected from the participants by use of a questionnaire. **Results:** A total of 2977 participants gave data on alcohol consumption. A total of 1549(52.03%) of the participants were men, while 1428 were women (47.97%). One thousand, six hundred and sixty three (55.8%), gave history of alcohol consumption, while 1,315 (44.2%) had never consumed alcoholic drink. Frequent alcohol consumers were 7.56%, while 30.5 % of the participants were heavy drinkers. **Conclusion:** The percentage of heavy alcohol consumers in the study is high, and there is need for the various' authorities to intervene to reduce the health burden associated with heavy drinking. This can be done through health education on the dangers of alcohol misuse at all levels as well as training and retraining of healthcare providers. Taxation on alcohol producing industries and alcohol drinks importation can be increased. High alcohol containing drinks can be banned from entry into the country.

Key words: Alcohol, alcoholism, substance abuse, Abia, Nigeria

INTRODUCTION

The abuse or harmful use of alcohol is a well known risk factor for disability and premature mortality.^[1] According to the World Health Organisation (WHO), hazardous or harmful use of alcohol was responsible for about 2.3 million global deaths in 2004, accounting for 3.8% of all global mortality.^[2]

This is because harmful use of alcohol is a risk factor for non-communicable diseases such as cardiovascular disease cancers, trauma/injuries and chronic liver disease, which have been on the increase.^[3] It is also known that about 4.5% of the global burden of disease, measured by disability-adjusted life years (DALYs) is due to alcohol; 25% of these are due to the relationship of alcohol to liver cirrhosis, CVD and cancers.^[1,4]

There is scientific evidence especially from advanced countries that suggests that low risk pattern of alcohol consumption has beneficial effects on the outcome of some diseases and some segment of the population.^[4-7] It is also well documented that this perceived benefit will disappear if the drinking pattern is associated by occasional alcohol abuse.^[7,8]

According to a recent data from WHO and released in 2011, Nigeria tops the list of African countries in alcohol consumption (alcohol consumption measured in equivalent litres of pure ethyl alcohol consumed per capita per year).^[9] The national adult per capita consumption was estimated at 12.3.^[9]

Several studies have been carried out in Nigeria on alcohol consumption and its consequences on health,^[10-12] however, none had been carried out in Abia state, prompting the state ministry of health to carrying out a study on alcohol consumption in the state, with a view to developing health programmes, tailored to ameliorate the burden of excessive alcohol consumption in the state.

METHODOLOGY

Study location

The survey was carried out in Abia State of Nigeria over a seven month period (August 2011 to March 2012). The three senatorial zones (Abia North, Abia Central and Abia South) in state were covered in the study, and rural and urban communities were chosen from each senatorial zone.

Study design

This was a cross-sectional and predominantly descriptive study.

Study population

The study population comprised adults (18 years and above), who were residing in the state. Individuals on transit or on temporary visit and those who refused to give consent were excluded from the study.

Sampling method and sample size

A multistage stratified cluster sampling technique was used to select the study participants.

The state is divided into three senatorial zones: Abia North, Abia Central and Abia South. One rural and one urban local government area (LGA) was randomly selected from each senatorial zone. They were Ohafia and Isuikwuato/Bende for Abia North, Umuahia North and Ikwuano for Abia Central and Aba

South and Ukwa East for Abia South Senatorial Zones (**Figure 1**). In each LGA, four Enumeration Areas (EAs) were randomly selected from the listing of all the EAs. Households in these EAs were further listed and eligible participants were selected. The selection was such that not more than two eligible participants of either sex were selected from each household. Using the EA map and starting from a prominent landmark in the community (such as church, school and police station), trained interviewers proceeded from household to household; interviewing eligible listed respondents until a minimum of 120 respondents were interviewed in the community.

We adopted the WHO STEPS guideline to calculate the appropriate and minimum sample size and the STEPS method to select a representative sample for the state.^[13,14]

Since there was no previous data on baseline levels of the indicators for the state, an estimated prevalence of 50% was used in order to ensure that the most conservative sample size (n_1). Using the values obtained and the population estimate for each 10-year age group by sex cluster for the population of the state (based on the 2006 population census), the estimated sample size was computed for each age and sex strata (n_2). The total sample size was then adjusted for design effect (n_3) and for expected non-response rate (n_4 or final sample size).^[15] The design effect of 1 was chosen (for random sampling) while the expected response rate was 80%.

Step 1: $n_1 = Z^2 p (1-p)/e^2$, Where: n = sample size, z = level of confidence (1.96 or 95%), p = baseline level of indicators (0.5 or 50%), e = margin of error.

Step 2: $n_2 = n_1 / (1 + [n_1 / \text{population}])$

Step 3: $n_3 = n_2 * \text{design effect}$

Step 4: $n_4 = n_3 / \text{response rate}$

Hence, the minimum calculated sample size for this study, making allowance for design effect, age-sex estimates as well as non-response rate was 2,880. However, of 2,999 subjects that were interviewed, 2,983 subjects with complete demographic and clinical data were included for analysis.

Data Collection

Data were collected from the respondents using an interviewer-administered pre-validated modified version of WHO STEPS questionnaire.^[16] The questionnaires were administered by a team of trained research assistants comprising 1 supervisor and 6 interviewers (per team). The supervisors were

consultants, public health physicians and cardiologists/nephrologists, while the interviewers were health workers - medical doctors and nurses. Data were collected on bio-demographic and socio-economic characteristics, use of tobacco, use of alcohol, diet, salt consumption, fruits and vegetable intake and personal/family medical history, physical activity and awareness of common Non-Communicable Disease (NCDs) such as hypertension, diabetes, stroke, asthma and cancers.

Anthropometry and blood pressure measurement

The subjects had their blood pressure, height and weight measured. Both systolic and diastolic blood pressures were measured thrice in a sitting position using Omron M2 Upper Arm Blood Pressure Monitor (Omron Healthcare Co. Ltd., Kyoto, 615-0084 Japan), appropriate cuff size and after a 5 minutes rest. Three blood pressure readings were taken at an interval of 2 minutes. Thereafter the average blood pressure for the second and third readings (systolic or diastolic) was averaged. Using a stadiometer respondents' height were measured in centimeter (cm), while their weight were measured using a weighing scale in kilogram (kg) from which their Body Mass Index (BMI) were determined.

Definition of terms

Subjects who had a systolic blood pressure (SBP) of ≥ 140 mmHg, or a diastolic blood pressure (DBP) of ≥ 90 mmHg or who had a normal blood pressure but were pharmacologically treated for hypertension were categorized as hypertensives.^[17]

BMI was classified using WHO criteria as follow: underweight= BMI below $18.5\text{kg}/\text{m}^2$, normal weight= $18.5\text{-}24.9\text{kg}/\text{m}^2$, overweight= BMI $25\text{-}29.9\text{kg}/\text{m}^2$. BMI of $30\text{-}34.9\text{kg}/\text{m}^2$ defines class 1, obesity, BMI of $35\text{-}39.9\text{kg}/\text{m}^2$ class 2 obesity, while BMI of $40\text{kg}/\text{m}^2$ and above was used to define class 3 Obesity.^[18]

A history of previous diabetes or fasting plasma glucose of $126\text{ mg}/\text{dl}$ or more defined diabetes mellitus. Impaired fasting glucose was defined as fasting plasma glucose of $100\text{ to }125\text{ mg}/\text{dl}$ or random blood glucose of $180\text{mg}/\text{dl}$ or higher. Impaired glucose tolerance (IGT) was defined as random blood glucose between $140\text{ and }180\text{mg}/\text{dl}$.^[19] A frequent drinker is defined as one who drinks five or more days a week.^[20, 21]

Statistical analysis

Data obtained were entered using EpiData Software Version 3.1 (EpiData Association Odense, Denmark), while analysis was carried out using SPSS Version 17.0 (SPSS Inc, Chicago Illinois, USA). Relevant means and standard deviation were calculated for continuous variables. Findings were presented using relevant frequency tables and appropriate charts.

RESULTS

A total of 2977 participants gave data on alcohol consumption. A total of 1549 (52.0%) of the participants were men, while 1428 were women (48.0%). The mean age of the participants was 41.7 ± 18.7 , for men, it was 41.6 ± 18.7 , for women 41.8 ± 18.3 , the difference being statistically insignificant. The mean BMI of the participants was 24.8 ± 4.6 ; for men it was 24.2 ± 3.8 , and for women it was 25.4 ± 5.2 , the difference being statistically significant. The mean waist circumference was 83.7 ± 11.4 , for men 81.7 ± 9.7 , for women, it was 85.7 ± 12.6 , the difference being statistically significant. Two hundred and eighty one (9.4%) of the participants had no formal education, for men 65 (2.2%), and for women 216 (7.3%), the difference being statistically significant. One hundred and eighty one (39.7%) of the participants had hypertension, while 64 (2.1%) had diabetes mellitus.

One thousand six hundred and sixty three (55.8%) gave history of alcohol consumption either in the past or present, while, 1315 (44.2%) had never consumed alcohol (table 1). One thousand four hundred and one (47.1%) gave history of alcohol consumption within last one year preceding the survey. Two hundred and fifty two (8.5%), did not consume alcohol in the past one year, although they have consumed alcohol in the past. The most commonly consumed alcohol among this group was beer, followed by gin, and then palm wine.

One hundred and thirty seven (9.8%) participants had consumed one alcoholic drink daily, 88 (6.1%) of the participants consumed one alcoholic drink 5-6 days a week. 558 (39.8%) of the participants consumed one alcoholic drink 1-4 days a week, while 369 (26.3%) consumed one alcoholic drink 1-3 days a week. Two hundred and fifty subjects (17.8%) consumed alcohol at least once a month. One thousand three hundred and eighty one, of the participants had been advised to cut down on their drinking previously. Seven hundred and ninety seven participants had consumed alcohol on an empty stomach.

Table 1: Sociodemographic characteristics of the participants according to gender and locality

	All (n=2977)	Men (n=1549)	Women (n=1428)	p-value	Urban (n=)	Rural (n=)	p-value
Age	41.7(18.5)	41.6(18.7)	41.8(18.3)	<0.692	39.3±17.4	43.9±19.2	<0.001
Body Weight	65.8(13.4)	68.2(12.0)	68.3(14.2)	<0.001	68.3±13.9	63.5±12.5	<0.001
Height	1.63(0.1)	1.68(0.08)	1.58(0.08)	<0.001	1.64(0.09)	1.62(0.09)	<0.001
Body Mass Index	24.8(4.6)	24.2(3.8)	25.3(5.2)	<0.001	25.3(4.8)	24.3(4.4)	<0.001
WC	83.7(11.4)	81.7(9.7)	85.7(12.6)	<0.001	84.5(11.7)	83.0(11.2)	0.017
Systolic BP	134.3(22.4)	136.9(20.5)	131.8(25.8)	<0.001	133.7(20.5)	134.8(24.0)	0.186
Diastolic BP	77.7(12.7)	78.2(12.7)	77.3(12.7)	<0.053	77.5(12.4)	78.0(12.7)	0.335
HR	77.4(11.7)	75.2(11.7)	79.5(11.4)	<0.001	77.9(11.9)	76.9(11.6)	<0.001
No Education	281(9.4%)	65(4.2)	216 (15.1)		90(6.6)	192(12.3)	<0.001
Ownership of men of mobility (n=2917)				<i>P</i> <0.001			<0.001
Bicycle	156(5.2%)	90(5.6)	66(4.6)		14(1.0)	142(9.0)	
Motorcycle	238(8.0%)	201(12.6)	37(2.6)		85(6.3)	179(11.4)	
Car/Bus	209(7.0)	167(10.5)	42(2.9)		147(10.9)	62(3.9)	
None	228(76.9)	913(5.7)	1375(96.3)		1106(81.8)	1187(75.6)	
Smokers	187(6.3%)	178(11.1)	9(0.6)		184(13.2)	214(13.5)	0.807
Hypertension	1181	599(37.6)	582 (40.8)	0.016	510(36.5)	674(42.5)	0.001
Diabetes mellitus	63(2.1%)	29(1.8)	34(2.4)	0.515	34(4.1)	29(3.2)	0.306
Obesity	409(13.7%)	129(8.1)	280(19.6)	<0.001	228(16.3)	183(11.5)	<0.001
Income (n=2005)							
<100,000 Naira	1002(33.7%)	409(25.6)	594(41.6)	<0.001			
>100,000 Naira	1003(33.7%)	627(39.3)	375(26.2)	<0.001	541(58.2)	461(42.8)	
Has ever consumed alcohol (n=2977)							0.194
Yes	1,662(55.8%)				796(57.1)	866(54.7)	
No	1,315(44.2%)				598(42.9)	717(45.3)	

Table 2. Alcohol consumption pattern among the respondents according to locality

Variable	All (n=2977)	Urban (n=1394)	Rural (n=1583)	P-value
Consumed Alcohol in the last 12 month (n=1653)				0.487
Yes	1401(47.1)	672(84.8)	729(84.6)	
No	252(8.5)	120(15.2)	133(15.4)	
Type of Alcohol (n=1404)				<0.001
Spirit (Brandy)	42(1.4)	20(3.0)	22(3.0)	
Palm wine	157(5.3)	54(8.1)	103(14.0)	
Wine	58(1.9)	35(5.3)	23(3.1)	
Gin	307(10.3)	104(15.6)	203(27.5)	
Beer	816(27.4)	445(66.8)	371(50.3)	
Others	24(0.8)	8(1.2)	16(2.2)	
Frequency of at least 1 alcohol drink in the last 1 year (n=1401)				0.344
Daily	137(9.8)	57(8.5)	80(10.9)	
5-6 days/week	88(6.1)	47(7.0)	39(5.3)	
1-4 days/week	558(39.8)	267(39.9)	291(39.8)	
1-3 days/week	369(26.3)	179(26.8)	190(26.0)	
Less than \geq 1month	250(17.8)	119(17.8)	130(17.8)	
No response	2(0.1)	0(0.00)	2(0.3)	
Average no of shot/glass				0.073
<5	1288(94.2)	617(94.3)	671(94.2)	
5-9	65(4.7)	31(4.7)	34(4.8)	
\geq 10	13(1.0)	6(0.9)	6(0.8)	
No response	1(0.1)	0(0.0)	1(0.1)	
Frequency of consumption of \geq shot/glass in the last 3 months				0.208
<5	1200(89.9)	565(89.1)	605(86.1)	
5-9	57(4.3)	38(6.0)	22(3.2)	
10-14	31(2.3)	16(2.5)	15(2.2)	
15-19	6(0.4)	2(0.3)	3(0.4)	
\geq 20	39(2.9)	17(2.7)	27(4.0)	
No response	2(0.1)	0(0.0)	2(0.3)	
Received advice to drink less (n=1381)				0.104
Yes	428(31.0)	202(30.7)	226(31.3)	
No	953(68.9)	457(69.3)	494(68.4)	
No response	2(0.1)	0(0.0)	2(0.3)	
Received advice from (n=444)				0.044
Health worker	74(16.7)	28(13.4)	46(19.6)	
Relative	257(69.5)	136(65.1)	121(51.5)	
Religious leader	58(15.7)	23(11.0)	35(14.9)	
Others	55(14.9)	22(10.5)	31(13.2)	
For men only No. of days 5 or more drinks was taken				0.009
0-3	814(89.6)	359(86.5)	423(92.2)	
4-6	45(5.0)	30(7.2)	13(2.8)	
7-10	24(2.6)	15(3.6)	9(2.0)	
>10	25(2.8)	11(2.7)	14(3.1)	
For women only How many days drank 5 or more drinks				0.522
0-3	379(96.7)	167(97.1)	208(98.1)	
4-6	13(3.3)	5(2.9)	4(1.9)	
Consumption of alcohol on an empty stomach (n=1373)				0.001
Never	576(43.3)	278(42.5)	298(41.4)	
Rarely	285(21.4)	127(19.4)	158(22.0)	
Sometimes	415(31.2)	219(33.5)	196(27.3)	
Often	54(4.1)	21(3.2)	33(4.6)	
Always	43(3.2)	9(1.4)	34(4.8)	

Comparison of urban and rural participants shows that rural dwellers significantly drink more palm wine and local gin compared to their urban counterpart. On the other hand beer is more commonly taken in the cities. Advice against alcohol consumption is more often received from relations than health workers. Rural dwellers are less likely to take alcohol in an empty stomach.

DISCUSSION

The survey examined the pattern of alcohol consumption in Abia state Nigeria. The result shows that 55.8% of the participant had ever consumed alcohol; while 44.2% had never consumed alcohol. Globally, 46% of all men and 73% of all women abstain from alcohol, and most of these persons have not consumed any alcoholic beverage during their entire lives.^[9] The prevalence of alcohol consumption in our study during the last one year was 47.1%, this very high. Ebirim *et al.*^[10] obtained a prevalence of 78.4% among students in Owerri, while Igwe *et al.*^[22] obtained a prevalence of 31.6% among secondary students at Enugu. Our results also showed that more men consume alcohol than women. This is similar to the results from other studies carried out in Nigeria^[21, 23, 24] and other parts of Africa.^[25] The percentage of frequent drinkers in our study was found to be 7.6%; this is higher than that reported by WHO in 2001 for Nigeria that is 5% among men, and 1% among females.^[9] This shows an increasing trend of alcohol consumption in the country during the last decade, which can be attributed by increasing number of social clubs, night clubs, and bars in the country.

A high percentage of the participants were heavy drinkers in this study, 30.5% of them had taken more than five drinks in a day. The burden of alcohol drinking is common among heavy drinkers. Excessive alcohol consumption is associated with myriad of acute and chronic complications which include; cancers of the oesophagus, liver, stomach, and colon, liver cirrhosis, alcoholic encephalopathy, alcoholic dementia, hypertension, to mention but a few.^[9,26] Moreover, heavy alcohol consumption impacts on the relationship between those who do so and their close relatives and friends. It breeds disharmony in their family, and on many occasions, leads to collapse of their marriages.

Moderate drinking is known to significantly reduce the risk of a number of health problems, such as heart disease, stroke, dementia, and gall

stones. The ideal amount of alcohol to drink to achieve this health benefit for women is one drink per day, and for men one or two drinks per day. A drink may be 175ml of wine, one standard-sized can or bottle of beer, or one standard shot of spirits.^[4-7] Palm wine and local gin are more commonly available in the rural areas of Abia state and this may explain why rural dwellers consume these. Similarly beer is more commonly available in the urban area.

The study revealed that most participants received alcohol related advice from relations rather than health care workers. There are some explanations to this. The relations are more likely to suffer the consequences of alcohol abuse. In addition the current orientation of the healthcare services is aligned towards providing education on alcohol use and misuse. This underlies the need to equip healthcare providers with requisite knowledge on alcohol related information.

CONCLUSION

Our study showed a high percentage of heavy alcohol consumption in the state of Abia, Nigeria. Based on the findings from the research, there is need for the various authorities; including local governments, state and federal governments to educate the population more on the menace of excessive alcohol consumption. This may be by means of jingles in the mass media. The people may also be educated on this hazard through, school teachers, and religious leaders. There is also need to set up rehabilitation centres in most cities to cater for those who have drinking problems. Moreover, there may be need to enforce it on alcohol producing companies to attach the warning that excessive alcohol consumption is injurious to health to their labels and adverts in the mass media.

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