

# Alcohol Use and its Associated Factors among Residents of an Urban Community in Plateau State Nigeria

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**Abstract—Background:** According to the World Health Organization (WHO), alcohol use contributes about 2.3 million deaths globally and accounts for 3.8% of global mortality. Nigeria ranks as the leading country in alcohol consumption in Africa. In view of this, this study was conducted to assess the level of alcohol use and its associated factors among residents of an urban community in Plateau state, Nigeria. **Methodology:** A cross sectional study carried out among 212 adult residents of AngwanRukuba community of Jos North Local Government Area of Plateau State using quantitative method of data collection. Epi info statistical software version 7.0 was used for data analysis with adjusted odds ratio and 95% confidence interval used in the study while a p-value of  $\leq 0.05$  was considered statistically significant. **Result:** The average age of the respondents in this study was  $28.2 \pm 10.4$  years with majority being 30 years and below. More of the respondents 142(60.8%) were current consumers of alcoholic drinks with harmful level of alcohol intake found to be 32.0%. Sex, quantity of drinks adjudged as normal in one sitting and age of onset of alcohol use were found to significantly predict harmful intake of alcohol containing drinks in the study. **Conclusion:** A relatively high level of alcohol use was found in this study with a corresponding level of harmful use. Sex, age of onset of alcohol use and quantity of drinks adjudged as normal in a sitting were significant contributors to harmful alcohol use.

**Index Terms—**Alcohol use, associated factors, urban community, Plateau state, Nigeria

## I. INTRODUCTION

Alcohol is an organic compound gotten from hydrocarbons containing one or more hydroxyl (-OH) group [1]. According to the World Health Organization (WHO), alcohol use contributes about 2.3 million deaths globally and accounts for 3.8% of global mortality [2]. The proportion of alcohol

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consumption as well as its burden has increased over the years especially in developing countries. Studies in Nigeria shows that adolescents are the major group involved in alcohol use [3]. The effects of alcohol use has both medical and socioeconomic impact felt at different levels; on the individual, friends, family, society and the nation as a whole [1]. Alcohol is one of the four most important risk factors for developing non-communicable diseases accounting for 60% of global mortality [4]. Alcohol can affect work performance, spouse-partner relationship and contributes to domestic violence and poverty. The national adult per capita consumption in Nigeria has been estimated to be 12.3 [5]. Data released by the WHO in 2011 ranked Nigeria as the leading country in alcohol consumption in Africa [2]. In view of this, this study was conducted to assess the level of alcohol use and its associated factors among residents of an urban community in Plateau state North central Nigeria so as to identify important evidence driven measures for reducing the harmful use of alcohol.

## II. METHODOLOGY

### A. Study Area

The study was conducted in Angwan Rukuba community of Naraguta B ward of Jos North Local Government Area of Plateau State. This is a rapidly developing multi-ethnic urban community within Jos metropolis with an estimated population of approximately 5,000 people [6].

### B. Study Population

The study population comprised of all adults 18 years and above permanently residing in Angwan Rukuba community of Naraguta B ward of Jos North LGA of Plateau State.

### C. Study Design

This was a cross sectional study carried out among adult residents of Angwan Rukuba community between March and May 2016 using quantitative method of data collection.

### D. Sample Size Determination

The sample size for this study was determined using the appropriate sample size determination formula for a cross sectional study [7]. Where  $n$  is the minimum sample size,  $Z$  is the standard normal deviate at 95% confidence interval (1.96),  $q$  is the complementary probability ( $1 - p$ ),  $d$  is the precision of the study set at 0.05 and  $p$  is the level of alcohol consumption in a previous similar study of 84.4% (0.844)

[8]. This gave a minimum sample size of 212 after inclusion of 5% to cater for non, poor and incomplete responses.

*E. Inclusion and Exclusion Criteria*

All adult 18 years & above who were permanent residents of Angwan Rukuba for at least 1 year prior to the study and consented to participate in the study were included while pregnant women were excluded from the study.

*F. Sampling Technique*

A multi stage approach to sampling was used in this study; Jos North LGA was selected out of the 17 Local Government Areas (LGAs) in the state using simple random sampling technique by balloting. Following which Naraguta B ward was selected from a list of 20 wards in Jos North LGA using simple random sampling by balloting. Thereafter, simple random sampling technique by balloting was used to select Angwan Rukuba community from the list of 28 communities in the ward. All inhabited buildings were listed and household enumeration was done giving 432 as the total number of households ( defined as a group of person living together under the same roof and eating from the same pot) which formed the sampling frame from which the sampling interval of 2 obtained from dividing the sampling frame by the estimated sample size. Furthermore, simple random sampling technique by balloting was used to select the starting household from within the sampling interval of two (2) and one eligible adult in every second household was sample until the sample size was met. In the instance where there were more than one eligible adult in a household balloting method was used to pick one of them and in household where there was no eligible respondents or where participation was declined, then eligible respondent in the next contiguous household was sampled.

*G. Data Collection*

An adapted semi structured interviewer administered questionnaire was used in this study comprising of the following sections; socio-demographic characteristics, pattern of alcohol use, level of alcohol use and factors influencing alcohol use [9]. The data collection instrument was pretested among adolescents in another LGA prior to the commencement of the study. Three research assistants were trained on the content and method of administration of data questionnaire prior to the commencement of the study by the principal researcher. Ethical clearance was sought and obtained from Jos University Teaching Hospital Ethical Review Committee. Written and verbal informed consents were obtained from all the respondents with confidentiality and anonymity of their responses assured and maintained.

*H. Scoring and Grading of Responses*

The minimum score (for non-drinkers) was 0 and the maximum possible score was 40 for alcohol use. A score of 8 or more was assessed as harmful alcohol consumption while a score of less than 8 as unarmful alcohol consumption [9].

Beer was adjudged to be industrialized bottled alcohol containing drink, processed from fermented cereals. Gin was adjudged to be industrialized distilled bottled spirit. Burukutu was adjudged to be locally brewed alcohol containing drink. Guskolo was referred to as locally Brewed distilled spirit.

Alcoholic wine was referred to as industrialized bottled alcohol containing drink, obtained from fermented fruits. One drink was adjudged to be 600ml of beer, or 78ml of gin or 289 ml of wine [10].

Current consumption of alcoholic drinks was assessed as intake of any drink containing alcohol at least once within the last 30 days prior to the study[11].

*I. Data Analysis*

All data collected were processed and analysed using Epi Info Statistical Software version 7. Multiple logistic regression was used to identify factors influencing harmful alcohol use. Adjusted odds ratio with 95% confidence interval was used and a p-value of < 0.05 was taken to be statistically significant.

III. RESULTS

The average age of the respondents in this study was 28.2±10.4years with majority being 30 years and below. More of the respondents, 134 (63.2%) were males while 78(36.8%) were females. The marital status of the studied participants revealed that 147 (69.3%) were not married with 61 (28.8%) married. Tertiary education was the highest educational attainment among slightly above half (51.4%) of the respondents while 76 (36.8%) of them had a positive history of parental alcohol consumption. The proximity of alcohol vending points to the places of residence was alluded to by 114 (53.8%) of the respondents. See Table I.

**Table I: Socio-demographic characteristics of the respondents**

Characteristics	Frequency Percentage n = 212	
<b>Age Group (Years)</b>		
≤ 30	154	72.6
30 and above	58	27.4
<b>Sex</b>		
Female	78	36.8
Male	134	63.2
<b>Marital Status</b>		
Single	146	69.3
Married	61	28.8
Divorced/separated	4	1.9
<b>Occupation</b>		
Artisan	12	5.7
Civil Servant	25	11.8
Student	94	44.5
Trader	58	27.5
Others*	23	10.4
<b>Highest Level of Education</b>		
Primary	16	7.5
Secondary	82	38.7
Tertiary	109	51.4
None	5	2.4
<b>History of Parental Alcohol Consumption</b>		
Positive	78	36.8

Negative	134	63.2
<b>Proximity Living Residence to Alcohol Vending Point</b>		
Yes	114	53.8
No	78	46.2

\*others = Footballers, clergy men  
SD = Standard Deviation

More of the respondents 142(60.8%) were current consumer of alcoholic drinks out of which a few (4.9%) adjudged intake of five or more drinks per sitting as normal and 81 (57.0%) adjudged 1 drink in one sitting as normal with the mean age of onset of alcohol consumption as 18.9 ± 5.5 years. Less than half 59 (41.5%) of the respondents had commenced intake of alcohol containing drinks at 18 years and below. Assessment of the variants of alcohol containing drinks consumed by the respondents revealed that 63 (29.7%) took beer, gin 17 (8.0%), Burukutu 4 (1.9%), Guskolo 4 (1.9%), Palm wine 29 (13.7%) and wine 18.4%. Furthermore, 50 (35.2%) of these respondents consumed more than one variant of alcoholic drinks particularly beer and any other type while 92 (64.8%) consistently consumed only one brand. The level of intake of alcohol among those currently consuming alcohol containing drinks was found to be in harmful dimension in 45 (32.0%) of them while intake of alcoholic drinks among the remaining 97 (68.0%) was found not to be in harmful dimension. See Table II.

**Table II: Level of alcohol consumption**

Level of Alcohol consumption	Frequency	Percentage
Current Alcohol Consumption		
Yes	142	67.0
No	70	33.0
Total	212	100.0
Quantity of Drink Adjudged as Normal per Sitting		
1 drink	81	57.0
2 drinks	38	26.8
3 – 5 drinks	16	11.3
> 5 drinks	7	4.9
Total	142	100.0
Age of Onset of Alcohol Consumption (years)		
≤ 18	59	41.5
> 18	83	58.5
Mean age of onset of alcohol consumption	Mean ±SD	18.9 ± 5.5 years
Type of Alcohol Consumed*		
Beer		
Gin	63	29.7
Burukutu	17	8.0
Guskolo	4	1.9
Palm wine	4	1.9
Wine	29	13.7
	39	18.4
Drinking Pattern		
Single type	92	64.8
Multiple types	50	35.2
Total	142	100.0
Level of Alcohol Use		

Harmful	45	32.0
Non-harmful	97	68.0
Total	142	100.0

\*=multiple response allowed  
SD = Standard Deviation

Sex of the respondents, age of onset as well as the quantity of drinks adjudged as normal in one sitting were found to predict harmful intake of alcohol containing drinks in the study. The odds of harmful consumption of alcoholic drinks among male respondents currently consuming alcohol was 2.8 times the odds in females currently consuming alcoholic drinks (AOR=2.8; 95% CI = 1.275 – 6.224; p = 0.011). More so, it was also found that the odds of harmful intake of alcoholic drinks among those who adjudged 5 drinks or more as normal in one sitting was 4 times the odds of those who adjudges one drink as normal in one sitting (AOR= 4.0; 95% CI = 1.109 – 14.567; p = 0.034). Furthermore, the odds of harmful use of alcohol among those who commenced alcohol use after 18 years of age was 0.3 times the odds of this who commenced earlier than 18 years ( AOR = 0.3; 95% CI = 0.144 – 0.713; p = 0.005). See Table III.

**Table III: Logistic regression of factors influencing harmful alcohol use**

Factors	Odds Ratio*	95% Confidence Interval	P-value
<b>Interval</b>			
Age (years)			
> 30	0.7	0.325 – 1.543	0.385
≤ 30	1	-	-
Sex			
Male	2.8	1.275 – 6.224	0.011
Female	1	-	-
Occupation			
Civil servant	0.8	0.176 – 3.431	0.740
Student	0.6	0.179 – 2.351	0.509
Trading	0.3	0.078 – 1.315	0.114
Others*	0.3	0.054 - 1.653	0.167
Artisan	1	-	-
Drinking pattern			
Multiple brands	1.6	0.595 – 4.132	0.363
Single brand	1	-	-
History of parental of parental Alcohol consumption			
Positive	1.5	0.723 – 3.007	0.285

Negative	1	-	-
Proximity of living residence to alcohol vending point			
Yes	1.4	0.704 – 2.802	0.336
No	1	-	-
Age of onset of alcohol consumption (years)			
> 18	0.3	0.144 – 0.713	0.005
≤ 18	1	-	-
quantity of drink adjudged as normal per sitting			
2 drinks	1.4	0.305 – 6.026	0.690
3 – 5 drinks	2.1	0.358 – 12.312	0.411
> 5 drinks	4.0	1.109 – 14.567	0.034
1 drink	1	-	-

\*=Adjusted Odds ratio

#### IV. DISCUSSION

The majority of the respondents in this study were 30 years and below predominantly males with an average age of 28 years. This is largely similar to the findings of studies conducted in Nigeria and India [5], [12]. However, variation in age distribution exists between this study and other studies conducted elsewhere in Ethiopia and India respectively [13], [14]. This implies that the age distribution of the studied subjects could be largely influenced by the target population for the study as well as the study locations. However, the intake of alcohol cuts across all age groups regardless of the setting where the study is carried out. Slightly above a quarter of the respondents had a preference for beer alone, although those who indicated intake of multiple types of alcohol containing drinks were higher than those who consumed single variant. Variation in the type of alcoholic drinks consumed exists in comparison with other studies as beer, spirit and palm wine still ranked high among the respondents' choices. Studies conducted in Nigeria corroborated the preference for beer while preference for whisky was more in other studies in Poland and India [8], [12], [15], [16]. Drink preferences could also be attributable to the fact that alcoholic drinks readily available in the locations where studies were carried out may play a significant role in influencing the choice of drinks consumed by the respondents in addition to other prevailing environmental and socio-economic factors.

This study revealed that more than half of the respondents were current consumers of alcohol containing drinks which is suggestive of a high level of alcohol use among the studied subjects which is corroborated with findings of other studies both within and outside Nigeria while findings from studies from Ethiopia, India, Lagos Nigeria and South Africa had about a third or less of the respondents taking alcohol containing drinks [5], [8], [10], [12] – [14], [16], [17]. This variation further affirms that alcohol use might not be entirely

determined by location alone but probably by other factors inherent and external to the individuals inclusive of societal and cultural acceptability among others.

Also from this study, a significant number of the participants consumed drinks containing alcohol only on special occasions, however the figure is slightly less than that obtained from a similar study in Serbia South-East Europe which showed that majority of the respondents used alcohol containing drinks only on special occasions [18]. This difference could be accounted for by the fact that these studies were conducted in different settings and among people of different orientations. It is known that orientation of individuals as well as their locations can modify their actions and inactions. The average age of onset of alcohol use was found to be in the teenage years with shared similarities with what was obtained in a Belgian and other Nigerian studies [3], [11], [19]. The implication is that with this early onset of commencement of alcohol intake, its duration of use could span the entire adult life of such persons thereby contributing significantly to the increased risk of occurrence of disease of which alcohol intake is a risk factor. Furthermore, a previous study had shown that individuals who took alcohol at an early age had increased likelihood of becoming alcohol dependant and were at a higher risk of experiencing alcohol related injuries such as motor vehicle injuries, drowning, burns etc [12].

Harmful use of alcohol was observed in about a third of those currently consuming alcohol which is of course a significant proportion but comparable to what was obtained in studies conducted in India and South Africa while another Nigeria study even had a much higher figure [13] – [15], [17]. This observed variation in harmful use of alcohol could imply the complexity in human behaviours with regards to their actions and significant external influences such as culture, societal perception and acceptability of action as well as their economic viabilities.

Sex, age of onset of use and adjudged intake of 5 drinks or more of alcohol in a sitting as normal were found to have significant influence on harmful intake of alcohol in this study. Other studies also found age and sex as factors influencing the harmful alcohol use particularly among males [10], [11], [14], [15], [17], [19]. Other factor found as determinant of harmful use of intake of alcohol were socio-economic status, religion, level of education, smoking and close association with individuals who take alcohol [13] – [15]. This has brought to bear that so many factors could exert influence on alcohol use beyond those assessed in this study thereby making the list of possible predictors inexhaustive within the permit of the objectives of the studies and characteristics of the studied subjects. More so, grooming and modelling of teenagers more importantly by their parents could play a significant role in shaping their habits as history of parental use of alcohol in this study revealed a higher odds of harmful use of alcohol though not statistically significant but corroborated by report from WHO, which estimated that 4.5 million young adults live in dysfunctional homes affected by parental alcohol consumption [12].



## V. CONCLUSION

A relatively high level of alcohol use was found in this study with a corresponding level of harmful use. Sex, age of onset of alcohol use and quantity of drinks adjudged as normal in a sitting were significant contributors of harmful alcohol use. It therefore imperative to further study the drivers of alcohol use through the individual and societal lens in order to be able structure appropriate interventions to addressing it.

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