

# Underage alcohol use and associated factors in Nigeria

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# Background

- Globally, Nigeria ranks the 27th country with adults alcohol drinking in litres/year
- One of the leading African countries in alcohol consumption
- Consumption of locally-produced alcoholic beverages is unaccounted for in the ranking
- Alcohol is the most commonly used substance in Nigeria

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# Background

- A systematic review on substance abuse among adolescents in SSA estimated
  - Alcohol consumption prevalence rate of 40.8%, second after tobacco at 45.6%
- Heavy episodic drinking estimated at 55% among current adolescent alcohol users in SSA (WHO, 2018)
- Packaging of spirits in sachets makes it accessible and affordable to underage persons
- Underage alcohol intoxication has been reported in schools in Nigeria
- The Nigerian govt. contemplated the ban on the sale of spirits in sachets
  - Readily affordable, available, and accessible
- Resistance from alcohol companies due to a lack of research evidence in Nigeria



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# Background

- In a response, the Minister of Health set up the Ministerial Committee in 2018 to address the growing underage alcohol use
- The Ministerial Committee comprised of the:
  - Federal Ministry of Health (FMoH)
  - National Agency for Food and Drug Administration and Control (NAFDAC)
  - Federal Competition and Consumer Protection Commission (FCCPC)
  - Association of Food Beverage and Tobacco Employees (AFBTE)
  - Distillers and Blenders Association of Nigeria (DIBAN)
- The Committee signed a MoU in 2019, and sought research evidence to inform policy
- The Committee contacted Cochrane Nigeria to conduct a study to provide evidence



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# Aim and objectives

- Aim: To determine underage alcohol use and associated factors in Nigeria
- Objectives:
  1. To determine prevalence of underage alcohol use
  2. To assess pattern of underage alcohol use
  3. To determine factors associated with underage alcohol use

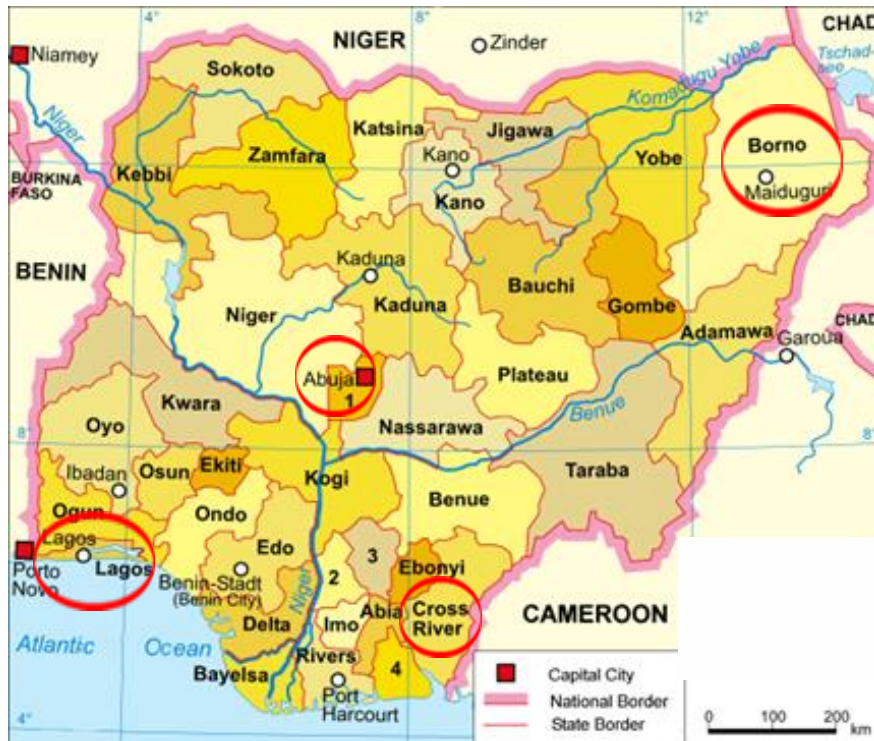
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# Methodology

- Study sites: Purposive selection of three states and the Federal Capital Territory (FCT) to reasonably achieve representativeness
  - Socio-economic and cultural variations in northern vs. southern Nigeria
    - Northern region - Borno State and the FCT
    - Southern region - Cross River and Lagos States



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# Methodology

- Study design:
  - Cross-sectional
- Study population:
  - Adolescents 10-17 years of age at the time of data collection
- Sample size estimation:
  - A minimum number of 427 adolescents was estimated using the Cochran formula (Cochran, 1977)
  - Assuming a prevalence of underage drinking of 50%
  - Adjusted for 10% non-response
  - The study sites were considered as clustering units
  - Clustering effect adjustment for by multiplying 427 by the design effect of 2
  - The sample size of 854 was rounded up to 900
  - 225 underage persons were recruited from each site

$$\frac{Z^2 pq}{d^2}$$

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# Methodology

- Sampling technique
  - Proportionate allocation of 50% and 50% of 225 study participants:
    - 112 in-school learners (56 public school, 56 private school)
    - 113 out-of-school adolescents
  
- Multi-stage sampling
  1. The three states and the FCT purposively selected
  
  2. Simple random sampling of two secondary schools (public and private) in each site
  
  3. 28 students in JSS and 28 students in SSS were recruited

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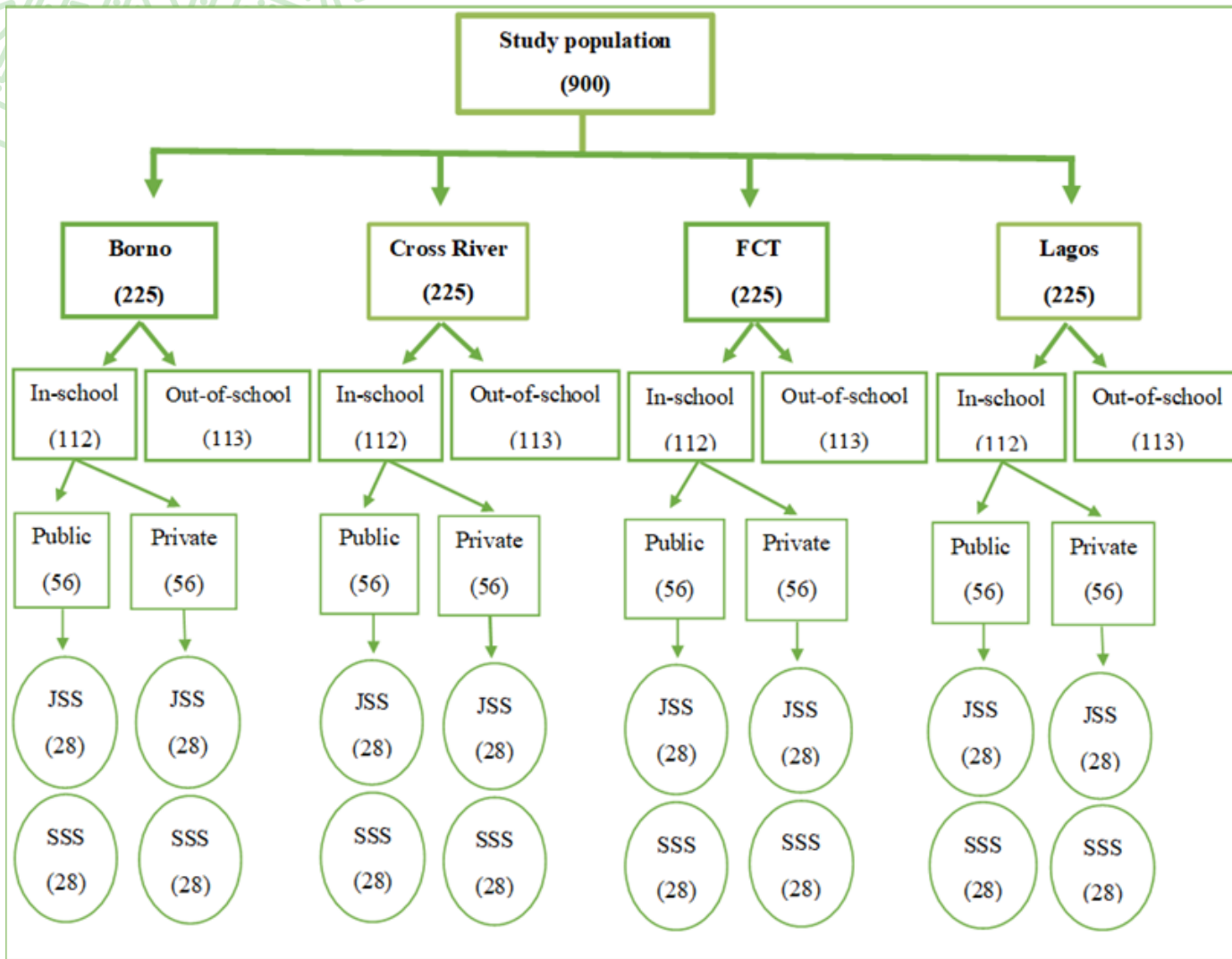
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# Methodology

- Flow diagram of the sampling



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# Definition of terms

- Substance use: Use or continued use of psychoactive substances
  - Legal: E.g., alcohol, for adults
  - Illegal: E.g., alcohol, for minors
- Substance abuse: Harmful or hazardous use of psychoactive substances, including alcohol and illicit drugs  
(WHO, AFRO)
- Adolescents: People from 10 and 19 years of age
- Underage: Too young to engage legally in a particular activity, especially drinking alcohol
  - Legal age is 18 years in Nigeria

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# Definition of terms

- Social drinking: Casual/responsible drinking of alcoholic beverages in a social setting without an intent to become intoxicated
- Binge drinking: Consumption of five or more drinks on an occasion for men or four or more drinks on an occasion for women
- Heavy episodic drinking (HED): Proportion of adults who have had at least 60 grams (six standard drinks) or more of pure alcohol on at least one occasion in the past 30 days
- Heavy drinking is defined as consuming:
  - For women, eight or more drinks per week
  - For men, 15 or more drinks per week

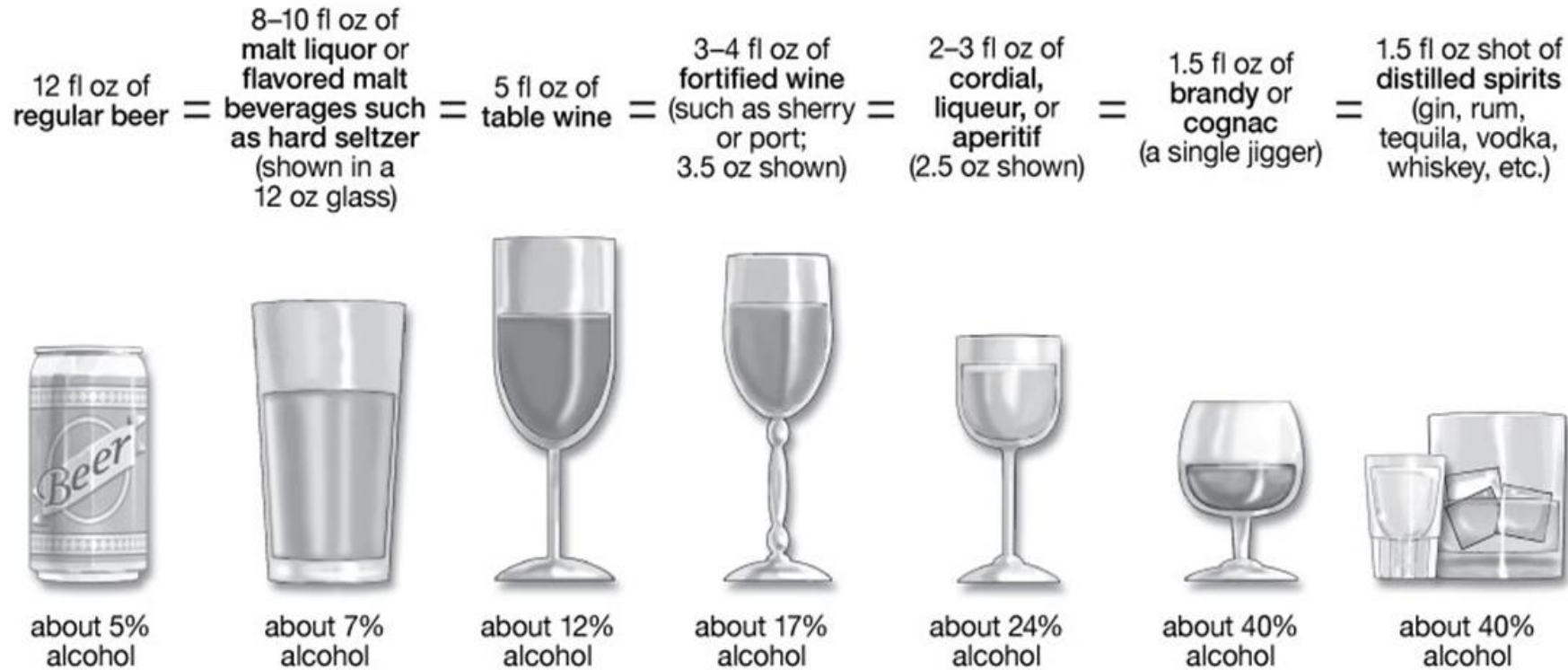
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# Definition of terms

## What is a standard drink?



Each drink shown above represents one U.S. standard drink and has an equivalent amount (0.6 fluid ounces) of "pure" ethanol.

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# Methodology

- Data collection
  - The standardised structured youth questionnaire on underage drinking was adapted, pretested, and interviewer-administered using ODK
- Data management
  - Dependent variable - underage alcoholic use (yes or no)
  - Independent variables - age, sex, state of residence, religion, type of school, school enrolment, grade, and SES.
  - Simple binary logistic regression analysis, adjusted for clustering effect and individual-level covariates
  - Analyses were done at 5% significance level, using STATA V.18
- Ethics: National Health Research Ethics Committee approval (NHREC/01/01/2007)

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# Results

Table 1: Socio-demographic characteristics of the participants

Table 1: Socio-demographic characteristics of the participants

- Mean age – 15 years
- Males – 58%
- Out-of-school adolescents – 51%
- In-school enrollment (public school) – 51%

Variable	Number (n)	Percentage (%)
Age group (years)		
10-13	263	27.2
14-17	702	72.8
Minimum and Maximum age	10 - 17	
Mean age ± SD	14.7 ± 2.0	
Median (Interquartile range)	15 (13 - 16)	
Sex		
Female	407	42.2
Male	558	57.8
School enrolment		
Out-of-school	494	51.2
In-school	471	48.8
School type for the in-school adolescents (n=471)		
Private	230	48.8
Public	241	51.2
Class for the in-school adolescents (n=471)		
JSS 1	57	12.1
JSS 2	53	11.3
JSS 3	99	21.0
SSS 1	51	10.8
SSS 2	143	30.4
SSS 3	68	14.4
Religion		
Christianity	597	61.9
Islam	354	36.7
*Other	14	1.4
Residence		
Borno State	250	25.9
Cross River State	264	27.4
Federal Capital Territory	201	20.8
Lagos State	250	25.9
Socio-economic status (SES)		
High	304	31.5
Middle	223	23.1
Low	438	45.4

# Results

Table 2: Alcohol use and types of alcoholic drinks consumed

- Prevalence of alcohol use – 30%
- Spirits consumed the most – 46%
- Spirits packaged in sachets – 75%
- Reason for preference of spirits packaged in sachets – (cheap, 38%)

Variable	Number (n)	Percentage (%)
<b>Alcohol use</b>		
No	678	70.3
Yes	287	29.7
Mean age of alcohol use (years)	12	
<b>Alcoholic drinks consumed the most (n=287)</b>		
Beer	62	21.6
Palm wine	61	21.3
Spirit	133	46.3
Table wine	17	5.9
*Other	14	4.9
<b>Packaging of spirit drinks consumed (n=133, multiple response)</b>		
Sachets	100	75.1
Poly-ethylene terephthalate (small plastic containers)	11	8.3
Big glass bottles	9	6.8
One or more of the above options combined	13	9.8
<b>Reason for preference for spirits packaged in sachets (n=133)</b>		
Cheap	51	38.4
Readily available	10	7.5
Attractive	0	0.0
One or more of the above options combined	66	49.6
**Other	6	4.5

\*Herbal alcoholic drinks, and locally brewed alcoholic drinks known as "Burukutu"

\*\*Easy to hide and move about with it

# Results

- High prevalence of HED (25%)
- More out-of-school females (36%) than males (9%) engaged in HED ( $P=0.028$ )

Table 3: Pattern of alcohol use

Variables	School enrolment n (%)			p-value of difference
	Out-of-school	In-school	Total	
Social drinking (total, n=287)				
No	89 (49.4)	60 (56.1)	149 (51.9)	$P=0.277$
Yes	91 (50.6)	47 (43.9)	138 (48.1)	
Social drinking (males, n=198)				
No	67 (48.2)	26 (44.1)	93 (47.0)	$P=0.594$
Yes	72 (51.8)	33 (55.9)	105 (53.0)	
Social drinking (females, n=89)				
No	22 (53.7)	34 (70.8)	56 (62.9)	$P=0.095$
Yes	19 (46.3)	14 (29.2)	33 (37.1)	
Binge drinking (total, n=212)				
No	146 (94.8)	56 (96.6)	202 (95.3)	$P=0.731^{\wedge}$
Yes	8 (5.2)	2 (3.4)	10 (4.7)	
Binge drinking (males, n=159)				
No	120 (97.6)	34 (94.4)	154 (96.9)	$P=0.317^{\wedge}$
Yes	3 (2.4)	2 (5.6)	5 (3.1)	
Binge drinking (females, n=53)				
No	26 (83.9)	22 (100.0)	48 (90.6)	$P=0.068^{\wedge}$
Yes	5 (16.1)	0 (0.0)	5 (9.4)	
HED (total, n=212)				
No	119 (77.3)	48 (82.8)	167 (78.8)	$P=0.384$
Yes	35 (22.7)	10 (17.2)	45 (21.2)	
HED (males, n=159)				
No	99 (80.5)	28 (77.9)	127 (79.9)	$P=0.721$
Yes	24 (19.5)	8 (22.2)	32 (20.1)	
HED (females, n=53)				
No	20 (64.5)	20 (90.9)	40 (75.5)	$P=0.028^*$
Yes	11 (35.5)	2 (9.1)	13 (24.5)	
Heavy drinking (total, n=212)				
No	149 (96.8)	58 (100.0)	207 (97.6)	$P=0.326^{\wedge}$
Yes	5 (3.2)	0 (0.0)	5 (2.4)	
Heavy drinking (males, n=159)				
No	122 (99.2)	36 (100.0)	158 (99.4)	$P=1.000^{\wedge}$
Yes	1 (0.8)	0 (0.0)	1 (0.6)	
Heavy drinking (females, n=53)				
No	27 (87.1)	22 (100.0)	49 (92.5)	$P=0.132^{\wedge}$
Yes	4 (12.9)	0 (0.0)	4 (7.5)	

\*Statistically significant p-value, ^Fisher's Exact p-value



# Results

Table 4: Factors associated with underage alcohol use

○ State of residence, being out-of-school, enrollment in public schools and being in the highest grade had increased odds of underage alcohol use in the adjusted analysis

Variable	Alcohol use (N=965)			
	No n (%)	Yes n (%)	Crude OR (95 CI)	Adjusted OR (95 CI)
	678 (70.3)	287 (29.7)		
<b>State of residence</b>				
Borno State	221 (32.6)	29 (10.1)	1	1
Cross River State	143 (21.1)	121 (42.2)	6.45 (4.09;10.18)	4.63(1.82;11.74)*
FCT	131 (19.3)	70 (24.4)	4.07 (2.51;6.61)	1.21 (0.42;3.51)
Lagos State	183 (27.0)	67 (23.3)	2.80 (1.73;4.50)	2.17 (0.87;5.41)
<b>School enrolment</b>				
In-school	364 (53.7)	107 (37.3)	1	1
Out-of-school	314 (46.3)	180 (62.7)	1.95 (1.47;2.59)	2.24 (1.51;4.01)*
<b>Type of school (n=471)</b>				
Private	190 (52.2)	40 (37.4)	1	1
Public	174 (47.8)	67 (62.6)	1.83 (1.18;2.85)	2.00 (1.17;3.42)*
<b>Class (n=471, In-school)</b>				
JSS1	48 (13.2)	9 (8.4)	1	1
JSS2	43 (11.8)	10 (9.4)	1.24 (0.46;3.34)	1.36 (0.48;3.89)
JSS3	72 (19.8)	27 (25.2)	2.00 (0.87;4.62)	2.83 (1.13;7.12)
SSS1	36 (9.9)	15 (14.0)	2.22 (0.87;5.65)	2.51 (0.88;7.21)
SSS2	120 (33.0)	23 (21.5)	1.02 (0.44;2.37)	2.71 (0.91;8.09)
SSS3	45 (12.1)	23 (21.5)	2.73 (1.14;6.52)	5.45(1.75;17.00)*

Hosmer Lemeshow goodness of fit p=0.283

\*Statistically significant p-value, ^Fisher's Exact p-value

# Discussion

- Possible role/influence of tourism (Cross River State being the tourist haven in Nigeria) on underage alcohol use
- Notoriety of public schools in non-enforcement of school regulations
- Proneness of out-of-school adolescents to substance use/abuse
- Peer pressure influence in the highest school grade
- Limitations:
  - Assumption that locally-made gin has the same content (40% ABV) as industrially-manufactured spirits
  - No knowledge of the alcoholic content of other locally-made alcoholic beverages

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# Summary

- High prevalence of underage alcohol use in Nigeria
- High prevalence of HED, especially among female out-of-school adolescents
- City of residence, enrollment in public schools, being out-of-school, and being in the highest grade were associated with underage alcohol use
- **Policy implications** - Cochrane Nigeria submitted a Research Report/Policy Brief to the Minister of Health in December 2023
  - A ban on spirits sold in sachets or in less than 200ml PET Bottle on February 01, 2024



NEWS INTELLIGENCE INVESTING ECONOMY



MANUFACTURING

NAFDAC Clarifies Ban On Alcohol In Sachet, Pet Bottles

# ACKNOWLEDGMENT

## S

- Study participants
- Stakeholders in the Ministerial Committee
- Research team
- Scientific Committee of the World Congress of Epidemiology
- Cochrane Nigeria
- Department of Global Health and Population, Harvard University, Boston, MA, USA



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