

# Alcohol Use Disorders among Trauma Survivors With Posttraumatic Stress Disorder in Dogonahawa, North Central Nigeria: Prevalence and Correlates

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## Research Article

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### ABSTRACT

A cross sectional descriptive study that was carried out to determine the prevalence and correlates of posttraumatic stress disorder with comorbid alcohol use disorders among conflict victims in Dogonahawa, North-Central Nigeria. A multistage sampling of households was employed to select 260 respondents aged  $\geq 18$  years. A face-to-face interview was conducted using Alcohol Use Disorder Identification Test and Mini International Neuropsychiatric Interview to collect data on alcohol use disorders and posttraumatic stress disorder. The prevalence of alcohol use disorders among respondents with and without posttraumatic stress disorders was 49.6% and 24.8%, respectively. Being a male and having secondary education were predictive of comorbid alcohol use disorders (OR=3.194, P=0.012) and (OR=6.066, P=0.024), while being married was protective of alcohol use disorders (OR=0.252, P=0.007). The results point to the importance of screening and treatment for victims of conflict, with particular attention to victims who are males, previously married, having secondary education and being heads of household.

## INTRODUCTION

Nigeria has witnessed recurrent political and ethno-religious conflict since the exit of the military rule in 1999, with the North Central region which plateau state belongs to being one of the areas worst hit. In September 2001, the first major ethno-religious crisis erupted in Jos the capital of Plateau State, causing the death of thousands of people including Muslims and Christians<sup>[4]</sup>. Over the ensuing years, the conflict rapidly spread to other parts of the state, resulting in a series of communal violence.

Dogonahawa is a case study of a specific community in Jos South and part of Barkin Ladi Local Government Areas (LGAs) of Plateau state that was subjected to a severe armed attack on the 7th March, 2010. The attackers according to reports were allegedly unknown, close to 500 people mostly women and children were butchered with machetes, clubs, axes and some shot with guns in a surprised midnight raid that lasted over three hours; left several others injured, with houses and properties destroyed and some survivors rendered homeless. Journalists broke down in tears as they saw hundreds of dead bodies inside houses, some strewn around the streets and pathways leading in and out of the village and others with heads severed<sup>[2,3]</sup>.

The extent of exposure to traumatic events of this nature suggests a potentially high rate of mental disorders among survivors, with Post Traumatic Stress Disorder (PTSD) being the most common<sup>[4]</sup>. This disorder is characterized by symptoms of re-experiencing, avoidance and increased arousal following exposure to a traumatic event<sup>[5]</sup>. Post-Traumatic Stress Disorder often co-occurs with other psychiatric disorders<sup>[6,7]</sup> including but not limited to depression, anxiety disorders, sleep disorders, sexual disorders, alcohol use disorders (Hazardous drinking, harmful drinking and Alcohol dependence) etc. Research examining the association between PTSD and alcohol suggests that alcohol consumption may be motivated by a desire to ameliorate the distressing symptoms of PTSD, a premise supported by self-medication hypothesis<sup>[8,9]</sup>. On the other hand, excessive alcohol consumption may impair judgment and lead individuals to engage in situations that may be traumatic.

To add to the distressing symptoms of PTSD, the socio-demographic factors including low socioeconomic status, age, gender, and marital status, poor support from the spouse or partner among others are equally important risk factors for alcohol use disorders<sup>[10]</sup>.

Post-Traumatic Stress Disorder and PTSD with co morbid AUDs if left untreated, may become chronic with consequent increased public health burden that will be as large as its effect on productive capacity, leading to economic losses <sup>[11,12]</sup>.

Previous studies have consistently documented a strong association between PTSD and alcohol use disorders. For example, the review of studies conducted among trauma victims in Croatia <sup>[13]</sup>, United States of America <sup>[14]</sup> and Australia <sup>[15]</sup> reported AUDs prevalence of 40.4% to 91% among individuals with PTSD as against 21.26% and 23.3% among those without PTSD. The majority of studies conducted among populations affected by armed conflict in sub-Saharan Africa <sup>[16-18]</sup> and indeed Nigeria <sup>[19-21]</sup> have narrowed their research to the prevalence of PTSD without evaluating for comorbid conditions associated with it. Thus, the knowledge about alcohol use disorders prevalence and possible link to PTSD among conflict-affected populations in Nigeria is scarce.

This paper offers a different perspective to the existing body of literature by evaluating the Prevalence of alcohol use disorders with and without PTSD among conflict-affected persons in Dogonahawa, north-central Nigeria and to identify the socio-demographic correlates of alcohol use disorders among those who developed PTSD.

We hypothesized that alcohol use disorders will be significantly commoner among individuals with PTSD than those without PTSD in this community.

## **MATERIALS AND METHOD**

### **Study Location**

This study was conducted over a six month period (December 2013 to May 2014) at about 4years after the 7th march 2010 armed conflict in Dogonahawa, a specific rural community in Jos-South and part of Barkin Ladi Local Government Areas (LGAs) of Plateau State with an estimated population of over 5500 people, Projected on the 1991 national census <sup>[22]</sup>. These people are predominantly the Berom ethnic group who also understand and speak Hausa language. Most of them are farmers, with the women also engaging in the production and sales of locally brewed alcohol.

### **Ethical Approval**

Ethical approval was obtained from the ethical committee of Jos University Teaching Hospital, while permission was granted by the village head of Dogonahawa before commencement of the study.

### **Study Design and Sample**

We present a cross-sectional study of adult's aged 18 years and above, resident in Dogonahawa prior to and during the armed conflict. The exclusion criteria were those who declined consent or had severe conditions that impaired their ability to participate in the study.

A multistage sampling of households was employed to select eligible respondents as follows:

Four Enumeration Areas (EAs) were systematically selected from Dogonahawa, 260 households were selected from all the selected EAs and a household member was then randomly selected per each of the selected households until the desired sample size of 260 was obtained. After three failed attempts to reach an eligible respondent in 4 selected households, the next households with available eligible respondents were selected instead, while 6 household members who were too ill and 8 who refused to give consent to participate in the study were excluded.

## **PROCEDURE**

Participants were approached in their respective homes in a face-to-face interview, ensuring that they had enough privacy. Individuals willing to participate in the study were first informed of their confidentiality before consent was obtained. Data were collected by trained researchers and research assistants who are fluent in both English and Hausa languages. The researchers were consultant psychiatrists, while the assistants were resident doctors and a clinical psychologist.

Participants, who were literate enough, filled out the questionnaires in the presence of the researchers, while the Hausa translated versions of the survey instruments were used to collect data from the participants who were unable to speak English language. Individuals who declined consent or had severe condition that impaired their ability to participate in the study were excluded. Individuals identified with any of the disorders under survey were counseled and or referred to a mental health services provider at the Jos University Teaching Hospital.

Participants were administered the first questionnaire, which covered the socio-demographic information (including gender, age, ethnicity, religion education, occupational group, marital status, head of household status as well as type of alcohol used and onset of alcohol drinking).

In addition, the following were assessed as the main outcome measures:

**Alcohol Use Disorders**

Alcohol use disorders were assessed using Alcohol Use Disorder Identification Test (AUDIT). This is a self-rated ten-item structured interview designed at the request of the World Health Organization for screening and management of AUDs in Primary Health Care to identify currently harmful or hazardous drinking and possible dependence [23]. This instrument has also been used in Nigeria [24]. It has a total score of 40. Individuals who scored 8 or more were considered as having at least hazardous drinking (here after referred to as AUDs).

**Posttraumatic Stress Disorder**

The PTSD module of the Mini International Neuropsychiatric Interview (MINI) [25] was used to assess current PTSD symptoms. It specifically asks question about the past month symptoms of PTSD. This instrument has been found to be easy to use in routine clinical practice. The MINI has been used in Nigeria [21]. In this study, the stem (trauma screen) question of the MINI was modified and adapted to reflect exposure to traumatic events related to the armed conflict in Dogonahawa. However, participants were asked not to describe the nature of the trauma they experienced in order to avoid the risk that people would under-report, because of a wish to avoid memory of or gain psychological distance from the trauma. Those who met the DSM-1V criteria were assigned a diagnosis of current PTSD.

**Data Analysis**

The statistical package for social sciences version 20 (SPSS-20) Software package was used to analyze the data. The results were presented using simple descriptive analysis. T-test was used determine the mean values of numerical variables and chi-square test was used to investigate the difference between categorical variables and their associations. Values of P<0.05 were considered statistically significant. To determine the correlates of alcohol use disorders among those with PTSD, the significant independent variables were then entered into a logistic regression analysis.

**RESULTS**

**Table 1** represents the Socio-demographic characteristics of the respondents. A total of 260 subjects were interviewed but 254 (97.69%) interviews comprising 139 men (53.46%) and 115 women (44.23%), with mean age of 34.33 ± 13.643 years were used in the analyses. The remaining 6 interviews were excluded because of incomplete data. The respondents were predominantly Christians (99.6%) of the Berom ethnic group (98.8%). A significant proportion of the sample had at most secondary level of education 190 (74.8%), belonged to the non-professional occupational group 176 (69.3%) and had individual monthly income below N50, 000.00 or <USD310.6 (190; 74.8%). Less than half of the respondents were married 124 (48.8%) and heads of household 121 (47.6%).

**Table 1.** Socio-demographic characteristics of respondents.

Variable name	Frequency (N=254)	Percentage (%)
<b>Age group</b>		
18-34	153	60.2
35-64	80	31.5
65 and above	21	8.3
mean age	34.33 ± 13.643	
<b>Sex</b>		
Male	139	54.7
Female	115	45.3
<b>Level of education</b>		
No formal education	41	16.1
Primary education	86	33.9
Secondary education	104	40.9
Tertiary education	23	9.1
<b>Occupational group</b>		
Professionals	16	6.3
Non professionals	176	69.3
Unemployed	62	24.4
<b>Individual monthly income</b>		
No stable income	46	18.1
<N20,000.00 (\$<124.2)	131	51.6
N20,000-49,000.00 (\$124.2-310.6)	59	23.2
≥ N 50,000.00 ( ≥ \$310.6)	18	7.1
<b>Marital status</b>		
Married	124	48.8

Never married	76	29.9
Previously married	54	21.3
<b>Religion</b>		
Christianity	253	99.6
Islam	1	0.4
<b>Ethnicity</b>		
Berom	251	98.8
Others	3	1.2
<b>PTSD diagnosis</b>		
Yes	141	55.5
No	113	44.5
<b>Type of alcohol use (n=98)</b>		
Locally brewed only	62	63.3
All available alcohol	36	36.7

The locally brewed ‘Burukutu’ was the most preferred alcohol by the respondents; 62 (63.3). Respondents with AUDIT score above 7 were defined as having at least hazardous drinking (alcohol use disorders). Hence 98(38.6%) of all respondents had AUDs, 70 (49.7%) had comorbid AUDs with PTSD and 28 (24.8%) had AUDs alone. The prevalence of AUDs among those with and without PTSD was found to differ at a level that was statistically significant with adults diagnosed with PTSD being more likely to have AUDs than those without (P<0.001) (**Table 2**). Respondents with PTSD and comorbid AUDs were significantly more likely to be males (P=0.001), with secondary education (P=0.025), previously married (P<0.003) and heads of household (P=0.005), respectively (**Table 3**). **Table 4** shows that among respondents with PTSD, being a male and having secondary level of education were the significant predictors for AUDs compared to being a female and having tertiary level of education, while being married was found to be significantly protective against AUDs compared to being previously married.

**Table 2.** Comorbid alcohol use disorders among respondents with and without PTSD.

Comorbid AUDs	PTSD		Frequency (%)	Statistics	
	Yes=n (%)	No=n (%)		X <sup>2</sup>	P
Yes	70 (49.7%)	28 (24.8%)	98 (38.6%)	16.369	<0.001
No	71 (50.3%)	85 (75.2)	156 (61.4%)		
<b>Total</b>	<b>141</b>	<b>113</b>	<b>254</b>		

**Table 3.** Socio-demographic characteristics of respondents who developed PTSD with and without Comorbid AUDs.

Variables	PTSD with Comorbid AUDs (N=141)		X <sup>2</sup>	P
	Yes (n=70)	No (n=72)		
<b>Age (years)</b>				
18-34	40 (57.1%)	48 (67.6%)	2.273	<b>0.321</b>
35-64	22 (31.4%)	19 (26.8%)		
65 and above	8 (11.4%)	4 (5.6%)		
<b>Sex</b>				
Male	41 (61.1%)	21 (33.9%)	12.027	<b>0.001</b>
Female	29 (36.7%)	50 (63.7%)		
<b>Educational status</b>				
No formal education	14 (20.0%)	11 (15.5%)	9.306	<b>0.025</b>
Primary education	18 (25.7%)	34 (47.9%)		
Secondary education	34 (48.6%)	20 (28.2%)		
Tertiary education	4 (5.7%)	6 (8.5%)		
<b>Occupational category</b>				
Professionals	3 (4.3%)	2 (2.8%)	1.841	<b>0.398</b>
Non professionals	53 (75.7%)	48 (67.6%)		
Unemployed	14 (20.0%)	21 (29.6%)		
<b>Individual monthly income</b>				
No stable income	11 (15.7%)	13 (18.3%)	5.536	<b>0.136</b>

<N20,000.00 (<\$124.2)	39 (55.7%)	49 (69.0%)		
N20, 000-50,000.00 (\$124.2-310.6)	17 (24.3%)	8 (11.3%)		
>N 50,000.00 (≥ \$310.6)	3 (4.3%)	1 (1.4%)		
<b>Marital status</b>				
Married	18 (25.7%)	37 (52.1%)	11.876	<b>0.003</b>
Never married	28 (40.0%)	23 (32.4%)		
Previously married	24 (34.3%)	11 (15.5%)		
<b>Head of house hold</b>				
No	30 (39.0%)	47 (61.0%)	7.747	<b>0.005</b>
Yes	40 (62.5%)	24 (37.5%)		

**Table 4.** Predictors of comorbid AUDs among respondents with PTSD.

Variables	OR	95% CI	P
<b>Sex</b>			
Male	3.194	1.296-7.870	<b>0.012</b>
Female	1.000		
<b>Educational status</b>			
Non formal education	3.640	0.673-19.672	<b>0.133</b>
Primary education	1.982	0.413-9.503	<b>0.392</b>
Secondary education	6.066	1.272-28.941	<b>0.024</b>
Tertiary education	1.000		
<b>Marital status</b>			
Married	0.252	0.093-0.686	<b>0.007</b>
Never married	0.427	0.151-1.207	<b>0.108</b>
Previously married	1.000		
<b>Head of house hold</b>			
No	0.706	0.299-1.669	<b>0.428</b>
Yes	1.000		

**Note:** CI: Confidence Interval; OR: Odds Ratio

## DISCUSSION

The prevalence of alcohol use disorders measured at 4years after the armed conflict in Dogonahawa, North Central Nigeria was 38.6% of all respondents, 49.6% among those who developed PTSD and 24.8% among those who did not, with the locally brewed alcohol (Burkutu) being the most preferred alcohol. We suspect that the significantly higher prevalence of AUDs among those who developed PTSD in excess of the rate among those who did not may indeed be secondary to the distressing symptoms of PTSD, a premise supported by self-medication hypothesis [8,9]. This is consistent with the results of previous studies conducted among trauma victims in Australia [15] and Croatia [13] that reported a 91% and 40.4% prevalence of AUDs among respondents who developed PTSD compared to 21.26% and 23.3% among those who did not develop PTSD. Similarly, Kessler et al. [14], reported a 41.8% prevalence of co morbid AUD with PTSD in the United States' general population. Thus our findings and the previous findings in the aforementioned studies lent support to our study hypothesis.

A comparison of our findings with those of previous studies conducted in Australia [15] and Croatia [13] shows interesting contrast in prevalence of AUDs among respondents with PTSD. This may be due to variation in factors such as methodology, culture and level of trauma exposure. For instance, while the study in Australia assessed for life time prevalence of PTSD and comorbid alcohol abuse/dependence, we assessed for AUDs among respondents with current diagnosis of PTSD.

Consistent with previous findings among trauma victims in the USA [14], Croatia [13] and Uganda [26], we found that being a male was a significant predictor for AUDs, which is similar to the findings among general populations in Tanzania [27], South-Africa [28] and Nigeria [24,29,30]. Several factors are likely to contribute to this finding. For instance men rather than women are more likely to use alcohol excessively to enable them overcome the distress associated with the trauma, while the women report their distress easily [13]. Furthermore, most traditional communities in Nigeria sanction against excessive drinking for women [30], suggesting that the significant gender difference in alcohol use disorders found in our study may also have been mediated by cultural expectations.

We also found that among individuals with PTSD, having low level of education and being previously married was predictive of AUDs while being married was rather protective against AUDs. It has been documented from previous research that low

socioeconomic status of which low level of education is a component and lack of support from the spouse or partner are independent risk factors for the development of PTSD and AUDs overlap <sup>[10]</sup>. This overlap may contribute to increased risk of comorbidity directly or by potentiating the neural connections between stress and addictions. For example, these factors could place individuals with PTSD at greater risk for symptoms deterioration, which may be complicated by using alcohol and other substances <sup>[10]</sup>.

The study also revealed that, being the household head was significantly associated with AUDs, which is consistent with findings from a study conducted among general population in Tanzania <sup>[27]</sup>. This association is not surprising because the Nigerian tradition confers the headship of the household on the man and the fact that AUDs rate was higher among men than women may in turn explain the reason for the significant association between AUDs and being the head of household. In addition, most of the previously married female heads of household that we interviewed also confirmed that they often engage in the production and sales of locally brewed alcoholic drink called Burukutu as their alternative source of income and therefore are at greater risk of alcohol consumption. However, the association between heads of household and AUDs did not remain significant after the logistic regression analysis.

Other sociodemographic characteristics such as age group, occupational group and income level were not found to be statistically significant during chi square analysis; hence they were not subjected to logistic regression analysis.

The study however had limitations that also need to be acknowledged. Our findings cannot be generalized across the population in Nigeria, rather, limited to adults exposed to armed conflict in Dogonahawa, until further studies have replicated similar findings in other traumatized communities in Nigeria. Furthermore, this study assumed that the findings were related to the 7th March 2010 armed attack on Dogonahawa, rather than other past traumatic exposures. It is possible that PTSD and AUDs diagnosed with some respondents may have occurred prior to the 2010 armed attack in this community.

The strength of this study however lies on the fact that it is the first community-based survey to examine the Prevalence of and Socio-demographic predictors for AUDs following exposure to armed conflict in North-Central Nigeria and the fact that the predictors were consistent with previous research, supports the validity of our findings.

## **CONCLUSION**

This study has demonstrated a high prevalence of alcohol use disorders among trauma victims with PTSD than those without and also highlights socio-demographic protective and predictive factors for AUDs among individuals diagnosed with PTSD. Unfortunately, Lower socioeconomic status may limit their access to mental health services. The results of this study will assist in planning for mental health promotion, screening and intervention among high risk population.

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