## Prevalence of Post-Traumatic Stress Disorder and Associated Factors among Women Living in Internally Displaced Persons Camps in Plateau North Senatorial District, Plateau State, Nigeria

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#### Abstract

**Background:** Post-traumatic stress disorder is a large contributor to the global burden of disease and is estimated to affect almost 4% of the world's population which are mostly children and women. The purpose of this study was to assess the prevalence of post-traumatic stress disorder and associated factors among women living in internally displaced persons camps in Plateau North Senatorial District.

**Methods:** A cross sectional study was carried out among 238 women living in internally displaced persons camps within Plateau North Senatorial District who were selected using a two-stage sampling technique. Data was collected using a structured interviewer administered questionnaire and Statistical Product and Service Solution software version 26.0 was used for data analysis. A p 0.05 was considered statistically significant at 95% confidence interval.

**Results:** The prevalence of post-traumatic stress disorder among study participants was 218 (91.6%). Avoiding the thought of a traumatic experience or situations that reminded them of such an experience; 226(95.0%) was the most common symptom of post-traumatic stress disorder among study participants. Factors such as lack of social support (p = 0.039), relocation from usual residence (p = 0.033) and death of close a relation (p = 0.043) were significantly associated with post-traumatic stress disorder.

Conclusion: This study found that the prevalence of post-traumatic stress disorder was high among study participants. Provision of adequate social support to women living in internally displaced persons camps will help contain and reduce the incidence of post-traumatic stress disorder among them.

Key words: Post-traumatic stress disorder, internally displaced women.

## Introduction

Post-traumatic stress disorder (PTSD) is a psychiatric disorder that can result from the experience or witnessing of traumatic or lifethreatening events such as terrorist attack, violent crime and abuse, military combat, natural disasters, serious accidents or violent personal assault. Posttraumatic stress disorder usually develops within weeks, months or even years after the occurrence of the traumatic event. Symptoms of PTSD include nightmares, flashbacks, insomnia and lack of concentration. The issue of displacement resulting from wars, conflict and disasters poses a significant public health concern. Those affected face various forms of trauma, violence, injuries, and diseases, increasing their susceptibility to a wide range of psychological disorders, including depression, anxiety, suicidal thoughts, substance abuse and post-traumatic stress disorders (PTSD).

Post-traumatic stress disorder is a large contributor to the global burden of disease and is estimated to affect almost 4% of the world's population.<sup>4</sup> This occurs due to witness or self-exposure to conditions such as murder, threats, kidnapping, loss of relatives or friends, and armed robbery attack.<sup>1</sup> The process of migration leads to loss of social role with further loss of self esteem.<sup>2</sup> When this occurs, it's natural to feel afraid. This fear triggers many splitsecond changes in the body to prepare the body to defend against the danger or to avoid it. This "fightor-flight" response, although initially an adaptive and healthy reaction that protects a person from harm, can become maladaptive when triggered repeatedly or intensely.<sup>2</sup> Over time, the persistent activation of this response system can dysregulate stress hormones and neurotransmitters, altering brain structure and function. These physiological changes, compounded by the emotional and cognitive impact of traumatic experiences, can eventually manifest as post-traumatic stress disorder.<sup>2</sup>

Internally Displaced Persons (IDP) are persons who have been forced to leave their homes and live in camps which are temporary homes for the displaced persons. In most of these camps, women are the most vulnerable category. For example, these women are more likely to feel depressed and anxious, as well as have trouble feeling or dealing with their emotions. They also tend to avoid activities and things that remind them of whatever traumatic event they went through.<sup>4,6</sup> Men, on the other hand, have a higher probability of turning to alcohol or drugs to mask their trauma. The women are left to care for the children, facing risks such as rape, physical abuse, widowhood, and change in their roles and responsibilities.<sup>3</sup> Globally, of the 30.6 million people internally displaced due to conflict and disaster, 21 million are women.<sup>7</sup> Factors that contribute to the development of PTSD have been classified into four groups: pre-existing factors like family history of mental illness and substance abuse, the traumatic event itself, the level of exposure, and post-trauma factors such as social support. The aim of this study was to determine the prevalence of post-traumatic stress disorder and its associated factors among women living in internally displaced persons' camps in Plateau North Senatorial district.

#### Methodology

## Study area

This study was conducted in Plateau North Senatorial District which includes Jos North, Jos South, Bassa, Jos East, Barkin Ladi and Riyom Local Government Areas (LGAs)<sup>6</sup>. The District is populated by mainly Berom, Hausa, Fulani, Anaguta, Jarawa and Amo ethnic groups.<sup>5</sup> The Berom, Anaguta, Amo and Jarawa ethnic groups are mainly Christians, and the Hausas and Fulanis are mainly Muslims.<sup>5</sup> Plateau North is purposefully selected because it is the area most affected by ethnic violence in Plateau State Nigeria with total population of 1,753,100. Ethnic violence has affected this area since 2001 and 55% of the conflict arose from disputes over access to land and resources.<sup>6</sup> At least 40,000 to 70,000 persons have been killed since 2001 and over 13,000 displaced due to communal violence<sup>5</sup>. Total number of IDPs within the Plateau North Senatorial zone peaked in 2004 with up to 220,000 persons, with more than 10,000 being displaced again after the 2008 riot. The total population of internally displaced person as of 2023 within Plateau North Senatorial District is about 200,000 of which 2,935 are women in the 27 registered IDP camps recorded by the Plateau State Emergency Management Agency.<sup>6</sup>

## Study population and Inclusion Criteria

Women aged 18 years and above living in IDP camps within Plateau North Senatorial District made up the study population, irrespective of their marital status at the time of the study.

#### Study design and sample size determination

A cross-sectional descriptive study design was used. Sample size of 238 was calculated using the Leslie and Kish formula for estimating sample size for cross-sectional study.<sup>9</sup>

$$n = (\underline{Z\alpha}^2 \underline{pq})$$

 $d^2$ 

Where n = Sample size

 $\underline{Z\alpha}$  = The value of Z from the probability table. f values are normally distributed, 95% falls within 2 standard errors of the mean, 1.96 from the standard normal variate tables.

P = estimate of prevalence of arousal symptoms of PTSD among the IDPs in a similar study in Nigeria=83.3% (0.833).<sup>7</sup> d=level of precision 5% (0.05)

d=level of precision 5% (0.05) q=1- p=1-0.833=0.167 n= $(1.962^2 \times 0.833 \times 0.167)$ (0.05)<sup>2</sup> n=214 Adjusting for non-response rate (r) of 10% We use the formula  $\frac{nr}{r-1}$ Where n=calculated sample size and r=10 = $214 \times 10$ (10- 1) =238 Sample size =238

#### Sampling technique

A two-stage sampling technique was used in this study to select study participants

Stage one: Selection of IDP camps.

In the Plateau North Senatorial District, there are a total of 27 IDP camps distributed as follows: 2 in Jos North with 208 women, 2 in Jos South with 239 women, 1 in Jos East with 99 women, 16 in Barkin Ladi with 1702 women, 2 in Bassa with 198 women, and 4 in Riyom with 489 women totalling 2935. One IDP camp was selected from each LGA using simple random sampling by balloting.

**Stage two:** Selection of women from the IDP camps To determine the number of women to be selected from each of the six selected IDP camps, proportionate allocation was carried out.

<u>The total number of women in each IDP camp</u> ×238 The total number of women in the six IDP camps

From each of the selected IDP camps a list containing the names of women was obtained from the IDP camp heads. This served as the sampling frame. A table of random numbers generated using WINPEPI was used to select the women to participate in the study.

This procedure was carried out in all the six IDP camps to get the 238 women required for the study with 17 women selected from Jos North LGA, 19

from Jos South LGA, 8 from Jos East LGA, 138 from Barkin Ladi LGA, 16 from Bassa LGA and 40 from Riyom LGA.

#### Data collection technique

A Structured interviewer administered adopted questionnaire used in Primary Health Care was used to collect data. Based on current research, the results of this Primary Care-Post Traumatic Stress Disorder (PC-PTSD) tool should be considered "positive" if a patient answers "yes" to any three items.<sup>7</sup> The interviewer asked how much the respondent had been bothered by a symptom over the past month. If a respondent denied experience of that symptoms, the PC-PTSD-5 was completed with a score of 0. However, if a respondent indicated that they had experienced a traumatic event over the course of their life, the respondent was instructed to respond to five additional yes/no questions about how that trauma exposure had affected them over the past month.<sup>7</sup> The data collection instrument was pre-tested among 10% (23) of women living in IDPs camp in Bokkos, Plateau Central Senatorial District. These IDP camps were not part of the IDP camp for this study.

#### Data analysis

**Independent variables** included the sociodemographic characteristics of the women such as age, marital status, level of education, occupation and number of children and Post-traumatic stress disorder was the dependent variable. The analysis of the data was done using the Statistical Product and Service Solutions (SPSS) version 26.0. A pvalue of 0.05 was considered statistically significant. All values < 5 were analysed using Fisher's exact test.

#### **Ethical consideration**

Ethical approval was obtained from the Ministry of Health Plateau State and written permission from the office of the Commissioner for Health (with ref n o . M O H / M I S / 2 0 2 / V O L . T / X ) Written informed consent was obtained from all the respondents. Detailed information on the nature, purpose and procedure and time duration of the study was provided to them with an option to opt out of the study anytime during the study. The respondents were assured of the confidentiality of

all information collected during the period of the study.

#### Results

Prevalence of Post-Traumatic Stress Disorder and perception of the living condition in the camp among the participants

The prevalence of post-traumatic stress disorder among the study participants was 218 out of 238 (91.6%) that completed the questionnaire. Table 1.

Two hundred and twenty-nine (96.2%) of the participants did not have access to a good water source, 200(84.0%) had slept hungry sometimes, 225(94.5%) had no good sleeping mat or bed, 227(95.4%) did not feel safe from reptiles, 229(96.2%) had no good toilets and bathrooms, 165(69.3%) had fallen ill during their stay in the camp, 221(92.9%) did not have adequate medical care and 208(87.4%) had received support from the government or other organizations. Table 2

## Post-Traumatic Stress Disorder symptoms among the study participants

The women who were below 36 years; 122(51.2%), showed more PTSD symptoms compared to the women who were 36 years and above; 79(33.2%). Table 3. The commonest symptom of PTSD among the respondents was avoiding the thought of a traumatic experience or situations that reminded them of such an experience; 226(95%), while detachment from others, activities or the surroundings was the least common symptom; 202(84.9%). Figure 1.

## Factors associated with Post-Traumatic Stress Disorder among the respondents

Results shows that lack of social support (p = 0.039), relocation from residence (p = 0.033) and death of a close relation (p = 0.043) had a statistically significant association with the development of Post-Traumatic Stress Disorder among the respondents while loss of property (p = 0.078), poor camp conditions (p = 0.540), seeing someone getting stabbed or killed (p = 1.237) and poor coping skills (p = 0.095) had no statistically significant association with the development of Post-Traumatic Stress Disorder and poor coping skills (p = 0.095) had no statistically significant association with the development of Post-Traumatic Stress Disorder among the respondents. Table 4.

PTSD	Frequency	%
Positive	218	91.6
Negative	20	8.4
Total	238	100.0

## Table 1: Prevalence of Post-Traumatic Stress Disorder among the participants

## Table 2: Living condition in the participants' camps

Statement	Frequency	%
Access to good source of water		
Yes	9	3.8
No	229	96.2
Sleep hungry sometimes		
Yes	200	84.0
No	38	16.0
Have good sleeping mat or bed		
Yes	13	5.5
No	225	94.5
Feel safe from reptiles		
Yes	11	4.6
No	227	95.4
Have good toilets and bathrooms		
Yes	9	3.8
No	229	96.2
Been ill anytime during your stay		
Yes	165	69.3
No	73	30.7
Have adequate medical care		
Yes	17	7.1
No	221	92.9
Get support from the Government or any organization		

Characteristics	PTSD Negative F (%)	Positive F (%)	$\chi^2$	Df	p-value						
						Age group (years)					
						< 36	19 (7.9%)	122 (51.2%)	4.151	1	0.028*
= 36	8 (3.4%)	79 (33.2%)									
Education attainment											
None	5 (2.1%)	46 (19.3%)	0.081	2	0.891						
Below tertiary	4 (1.7%)	70 (29.4%)									
Tertiary	11 (4.6%)	92 (38.6%)									
Ethnicity											
Plateau indigenous	14 (5.9%)	161 (67.6%)	0.343	1	0.569						
Non-indigenous	6 (2.5%)	47 (19.7%)									
Religion											
Christianity	18 (7.6%)	186 (78.1%)	0.097	1	0.811						
Islam	2 (2.8%)	22 (9.2%)									

# Table 3: Association between Socio-demographics and PTSD symptoms among the respondents

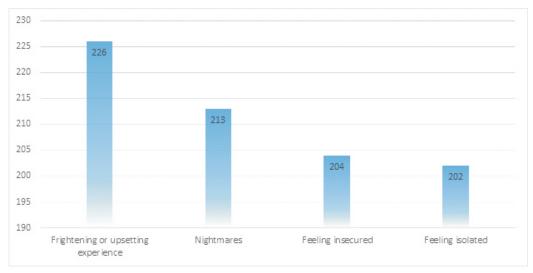


Figure 1: Frequency distribution of PTSD symptoms

Factors	PTSD				
	Negative F (%)	Positive F (%)	$\chi^2$	df	p-value
Lack of social support	· · ·				
Yes	15 (6.3)	193 (81.1)	4.354	1	0.039*
No	5 (2.1)	25 (10.5)			
Loss of property					
Yes	13 (5.4)	159 (66.7)	3.176	1	0.078
No	7 (2.9)	59 (24.8)			
<b>Relocation from residence</b>					
Yes	17 (7.1)	209 (87.8)	4.522	1	0.033*
no	3 (1.3)	9 (3.8)			
Poor camp conditions					
Yes	14 (5.8)	166 (69.7)	0.376	1	0.540
No	6 (2.5)	52 (21.8)			
Death of close relation					
Yes	18 (7.6)	191 (80.2)	4.105	1	0.043*
No	2 (0.8)	27 (11.3)			
Seeing someone stabbed or					
killed					
Yes	14 (5.0)		1 401		1.007
No	14 (5.8)	186 (78.1)	1.431	1	1.237
	6 (2.5)	32 (13.4)			
Poor coping skills					
Yes	13 (5.5)	180 (75.6)	3.688	1	0.095
no	7 (2.9)	38 (15.9)			

## Table 4: Factors associated with PTSD among the respondents

#### Discussion

There was a high prevalence of post-traumatic stress disorder among women living in internally displaced persons camps in tis study. It was even higher than that from a study conducted in a sample of Afghan and Cambodian refugees who lived in the USA, where the reported PTSD prevalence was five in every ten.<sup>8,19</sup> It is also much higher than that from a study conducted in former Yugoslovia, which reported PTSD prevalence among refugees in collective centres as occurring in about a third of the refugees.<sup>18</sup> This is probably due to access to social support within Internally displaced persons camps in those climes as persons within internally displaced persons camps in USA are more likely to have access to social support than their counterparts in Plateau North Senatorial District. The finding is also at variance with those from studies conducted in Diyarkabir Turkey on post-traumatic stress disorder in internally displaced people subjected to displacement by Armed forces where PTSD occurred in one in five among IDPs.<sup>9</sup> In Kenva the prevalence of PTSD among persons displaced in the 2007 following the post-election violence was found to be lower than the findings of this study.<sup>10,20</sup> Similarly, a lower prevalence of PTSD was documented in northern Uganda and South Sudan.<sup>11</sup> However, a study on assessment of Post-traumatic stress disorder among internally displaced persons in Jigawa State, Nigeria showed a prevalence which was relatively similar to the one obtained in this study.<sup>12,17</sup> This probably means that most women in internally displaced persons camps are mentally traumatized as a result of ethno-religious conflicts that displaced them from their homes. The Public health implication of this is that many of the women in internally displaced persons camps are not mentally healthy which will regress the growth and development of the society as a whole due to the vital role of women in contributing to the growth and development of the society.

The age of women living in internally displaced persons camp has an association to PTSD where more of the younger women had PTSD compared to older women living in internally displaced persons camps. This is in accordance with a study conducted among 300 participants in Kenya on prevalence of post-traumatic stress disorder among

internally displaced persons where there was significant association between age and posttraumatic stress disorder.<sup>10</sup> This may be as a result of greater resilience against adverse situation in older age. This may explain why PTSD was more common among younger women than older women seen in the study. Likewise a study in conducted in Macedonia, found that among the demographic variables, only age and years of education are correlated with the development of PTSD.<sup>13</sup> In Turkey, age was also demonstrably associated with post-traumatic stress disorder; the Post traumatic stress disorder rate was higher in persons who were 25 years of age or younger at the time of internal displacement.<sup>34</sup> This is, however, at variance with the findings among internally displaced persons in Jigawa State, where age and post-traumatic stress disorder had no statistically significant association.<sup>12, 18, 24</sup>

Avoiding the thought of traumatic experience or situation that reminded them of such an experience was the common symptom of PTSD. Results further indicated that most of the respondents on average experienced symptom of PTSD for15 days and above. In line with this report, a previous study showed that symptoms of PTSD may include disturbed thoughts, numb feelings, nightmares, physical distress to trauma related events, attempts to avoid thinking of trauma related cases and alteration in the way the person thinks. In typical cases, the individual with PTSD persistently avoids thinking about either trauma-related thoughts and emotion or discussion of the traumatic events. These symptoms may generally begin within the first two weeks to three months after inciting traumatic events, but may not begin until years later.<sup>14</sup>

Lack of social support, relocation from residence and death of close relations are factors that are associated with post-traumatic stress disorder. A similar study carried out in Jos, Plateau State, Nigeria in 2015 among victims of ethno religious conflict showed that two-thirds of the respondents had experienced some form of violence ranging from seeing someone getting killed, lack of social support to loss of property and relocation from residence.<sup>5,23</sup> Also reports show that unexpected and sudden death of a loved one is the most common traumatic event in cross national studies in USA.<sup>9</sup> Because of the high prevalence of this type of traumatic events, it accounts for approximately 3 in every ten of PSTD cases worldwide.<sup>15</sup> Previous studies revealed that limited social support was associated with severe post-traumatic stress disorder and was posited to be the key mechanism in the prevention and treatment of PTSD.<sup>16,21</sup> Also a study conducted in South Africa among refugees in internally displaced persons camps due to conflicts and violence, revealed that refugees had PSTD due to the unexpected displacement from their homes, harsh conditions of camps and witnessing someone getting shot.<sup>17</sup>

A possible reason for this similarity could be because internally displaced persons camps are characterized by limited resources to carter for the needs of the persons within the camps hence fostering an environment that accommodates the development of post-traumatic stress disorder. The psychological impacts of ethnic violence are clearly a serious public health problem for women. The public health implication of this study is that it provides understanding of prevalence of posttraumatic stress disorder among women which allows public health authorities to design targeted intervention programs. These programs can focus on early detection, access to mental health services, and providing support tailored to the specific needs of women who are at higher risk of developing posttraumatic stress disorder due to exposure to trauma and lack of social support. This study has limitations due to recall period which might have introduced recall biases in relation to the questionnaires administered which was minimized by using objective measures when possible and minimizing the time lag between exposure and data collection during the study.

## Conclusion

The result of this study indicated that prevalence of post-traumatic stress disorder is high among women in internally displaced persons camps in the Plateau North Senatorial District of Plateau State. Younger women had more post-traumatic stress disorder than older women and avoiding the thought of a traumatic experience or situations that reminded them of such an experience was the most common symptoms of Post-traumatic stress disorder among these women. Lack of social support, death of close relation and relocation from residence were significantly associated with posttraumatic stress disorder. Therefore, it is recommended that Nigerian government and nongovernmental organizations need to strengthen comprehensive protection and social support for women in IDPs camps to help reduce mental distress and as a preventative measure to reduce further exposure to trauma.

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