Original Article

Post-traumatic Stress Disorder and Functional Disability among Internally Displaced Persons in North-East Nigeria

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ABSTRACT

The prolonged insurgency in North-East Nigeria caused serious displacement and left the survivors with multiple psychological consequences such as post-traumatic stress disorder (PTSD). A high prevalence rate of PTSD among Internally Displaced Persons (IDPs) has been reported across literatures. This study aimed to determine the factors that are associated with PTSD and its relationship with functional disability among IDPs in Yobe State, Nigeria. This was a cross sectional study of 450 respondents, recruited using a systematic sampling method. We used Harvard Trauma Questionnaire to screen for symptoms of PTSD and definite diagnosis made with WHO Composite International Diagnostic Interview (CIDI), PTSD Module. Hopkins Symptom Checklist was used for symptoms of depression and definite diagnosis made with CIDI Depression Module. The WHO Disability Assessment Schedule 2.0 was used to measure functional disability. There were 192 (45.5%) males and 230 (54.5%) female respondents. The mean age of respondents was 39.4±18.50 years with range of 18-80 years. Significant PTSD symptoms were found among 159 (37.7%) of the IDPs while Clinical interview gave a definite prevalence of 18.5%. Two hundred and forty-four (57.8%) of the respondents had disability scores in the mild range, 17.5% in the moderate range while 20.7% were in the severe range. Majority of those with disability scores in the severe range had PTSD. Factors significantly associated with PTSD were age, marital status, duration of displacement, type of abode, general living condition, self-reported general health, and disability score. A High prevalence rate of PTSD was found among IDPs and the severity of disability correlated well with having diagnosis of PTSD in the study.

Keywords: Boko Haram, Disability, IDPs, PTSD.

INTRODUCTION

The prolonged insurgency in North-East Nigeria caused serious displacement and left the survivors with multiple psychological consequences.¹ Notable among these

consequences is Posttraumatic stress disorder (PTSD). It has been documented that Internally Displaced Persons (IDP) are among the most vulnerable people in the world today.²

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Posttraumatic stress disorder has been found to be the most common psychiatric complication of traumatic experiences.³ The prevalence rate of PTSD has reportedly been high among IDPs. A study from Jos,⁴ reported 58.7% while another study from Kaduna,⁵ found 42.2% prevalence among IDPs in Nigeria. Prevalence rate of 54% was reported among IDPs in Uganda while 80% rate was found in Kenya.^{6,7}

History of trauma, severity of trauma, female gender, and poor social support are factors associated with developing PTSD while repeated exposure to trauma is said to be protective.

This study set out to investigate the factors associated with PTSD and its relationship with functional disability among people displaced by insurgency in Damaturu, Yobe State, Nigeria.

MATERIALS AND METHODS

Study setting

The study took place in July 2017 as part of a large-scale survey of IDPs in North East Nigeria, aspects of which has been published elsewhere.⁸ Two IDP camps namely Kukareta and Mallam Aliyu Mohammed Gombe farm in Damaturu, Yobe state with an estimated population of 11,000, which is about 61% of all IDPs in the state at the time of the study were sampled.

Study design

It was a cross sectional descriptive study among male and female IDPs aged 18years and above. Subjects already diagnosed with mental illness prior to onset of Boko Haram insurgency and those who refused consent were excluded from the study. We sampled 450 participants as part of survey on mental illness among Internally Displaced Persons in Yobe State.⁸

Sampling technique

Systematic sampling technique was employed to select IDPs for the study.⁸ The study instruments were a socio-demographic questionnaire, Hopkins Symptom Checklist (HSC-25)⁹ for symptoms of depression, Harvard Trauma Questionnaire (HTQ)¹⁰ for symptoms of PTSD, The World Health Organization's Disability Assessment Schedule 2.0 (WHO-DAS 2.0)¹¹ was used to measure functional disability. Definite diagnosis of PTSD and depression were made using the WHO Composite International Diagnostic Interview (CIDI)¹² for PTSD and Depression.

Data collection and procedure

Eighteen data collectors fluent in English and Hausa were recruited and trained for five days on the use and technique of the interview prior to the study. The data was collected over a period of 10 days, each taking an average of 45minutes to complete. The process of data collection was supervised by psychiatrists and a clinical psychologist. The psychiatrists also conducted the diagnostic interviews using the CIDI questionnaire.

Data Analysis

Data analysis was done using SPSS version 21. Descriptive and analytic statistics were used to summarize data and test for clinical significance and predictors of PTSD. P value was set at less than 0.05. The outcome of the HTQ was dichotomised based on cut off score of 2.5 into those with significant PTSD symptoms and those without and entered into the logistic regression. Bivariate and logistic regression analysis was carried out to identify factors associated with symptomatic PTSD. Adjusted odds ratios (AORs) were determined with 95% confidence interval (CI) to identify predictors of PTSD.

Ethical consideration

Ethical clearance was sought and obtained from Plateau State Specialist Hospital prior to commencement of the study. The IDPs gave an informed consent before inclusion in the study after explaining the nature of the study and their rights as participants including the confidentiality of the information given. Those with clinical symptoms of PTSD got medical advice from the psychiatrists and psychologist and subsequently referred for specialist treatment.

RESULTS

Eight (1.8%) out of the 450 persons recruited for the study refused consent while 20 (4.4%) did not complete the interview and were removed from the final analysis. This left 422 as the final sample analysed.

Socio-demographic characteristics

One hundred and ninety-two (45.5%) were males while 230(54.5%) were females. The mean age of the respondents was 39.4±18.50 years with range of 18-80 years. Two hundred and ninety-three (69.4%) of the respondents were married at the time of the study, 116 (27.5%) were single and 13(3.1%) were divorced as shown in Table 1. The table also showed the type of abode, living condition, general health, age distribution and educational status of the respondents. The range of

duration of stay in the IDP camps is 2-4years (Mean=2.90±0.49).

Prevalence of PTSD

Significant PTSD symptoms were found among 159(37.7%) of the IDPs. Clinical interview with CIDI-PTSD module gave a definite diagnosis of 18.5% prevalence rate of PTSD among the IDPs.

Factors significantly associated with PTSD were age ($p=0.001$), marital status ($p=0.001$), duration of displacement ($p=0.001$), type of abode ($p=0.007$), general living condition ($p=0.001$), self-reported general health ($p=0.001$), and WHODAS 2.0 score ($p=0.001$) (Table 2). None of the variables could independently predict the development of PTSD among the respondents.

Table 1: Demographic characteristics of respondents

Variables	Frequency (n)	Percentage (%)
Gender		
Male	192	45.5
Female	230	54.5
Total	422	100.0
Age Group		
<20	96	22.7
20-40	182	43.1
41-60	88	20.9
>60	56	13.3
Total	422	100.0
Marital Status		
Single	116	27.5
Married	293	69.4
Divorced	13	3.1
Total	422	100.0
Formal Education		
Yes	55	13.0
No	367	87.0
Total	422	100.0
General Health		
Very good	85	20.1
Good	160	37.9
Bad	143	33.9
Very bad	34	8.1
Total	422	100.0
Type of Abode		
Tent	91	21.6
Open hall	257	60.9
Personal house	46	10.9
Mosque	28	6.6
Total	422	100.0
Living Condition		
Good	215	50.9
Bad	207	49.1
Total	422	100.0
Disability Score on WHODAS 2.0		
Mild	244	57.8
Moderate	74	17.5
Severe	104	24.7
Total	422	100.0
Duration of displacement (years)		
2	74	17.5
3	316	74.9
4	32	7.6
Total	422	100.0

Table 2: Relationship between PTSD and demographic variables

Variable	Total	PTSD		Df	p value
		NO	YES		
Gender					
Male	192(45.5%)	151(35.5%)	41(9.7%)	1	0.165
Female	230(54.5%)	193(45.7%)	37(8.8%)		
Total	422(100.0%)	344(81.5%)	78(18.5%)		
Age					
<20years	96(22.7%)	93(22.0%)	3(0.7%)	4	0.001
21-40 years	182(43.1%)	155(36.7%)	27(6.4%)		
41-60 years	88(20.9%)	56(13.3%)	32(7.6%)		
Above 60 years	56(13.3%)	40(9.5%)	16(3.8%)		
Total	422(100.0%)	344(81.5%)	78(18.5%)		
Formal education					
Yes	55(13.0%)	46(10.9%)	9(2.1%)	1	0.664
No	367(87.0%)	298(70.6%)	69(16.4%)		
Total	422(100.0%)	344(81.5%)	78(18.5%)		
Marital status					
Single	116(27.5%)	108(25.6%)	8(1.9%)	2	0.001
Married	293(69.4%)	228(53.6%)	67(15.9%)		
Divorced	13(3.1%)	10(2.4%)	3(0.7%)		
Total	422(100.0)	344(81.5%)	78(18.5%)		
Duration					
2 years	74(17.5%)	54(12.8%)	20(4.7%)	2	0.001
3 years	316(74.9%)	270(64.0%)	46(10.9%)		
4 years	32(7.6%)	20(4.7%)	12(2.8%)		
Total	422(100.0%)	344(81.5%)	78(18.5%)		
Type of abode					
Tent	91(21.6%)	63(14.9%)	28(6.6%)	3	0.007
Open hall	257(60.9%)	216(51.2%)	41(9.7%)		
Personal house	46(10.9%)	40(9.5%)	6(1.4%)		
Mosque	28(6.6%)	25(5.9%)	3(0.7%)		
Total	422(100.0%)	344(81.5%)	78(18.5%)		
Living condition					
Good	215(50.9%)	207(49.1%)	8(1.9%)	1	0.001
Poor	207(49.1%)	137(32.5%)	70(16.6%)		
Total	422(100.0%)	344(81.5%)	78(18.5%)		
General health					
Very good	85(20.1%)	85(20.1%)	0(0.0%)	3	0.001
Good	160(37.9%)	153(36.3%)	7(1.7%)		
Bad	143(33.9%)	87(20.6%)	56(13.3%)		
Very bad	34(8.1%)	19(4.5%)	15(3.5%)		
Total	422(100.0%)	344(81.5%)	78(18.5%)		
WHODAS 2.0					
Mild	244(57.8%)	244(57.8%)	0(0.0%)	4	0001
Moderate	74(17.5%)	74(17.5%)	0(0.0%)		
Severe	104(24.6%)	26(6.2%)	78(18.5%)		
Total	422(100.0%)	344(81.5%)	78(18.5%)		

Table 3: Comorbidity between PTSD and depression

Variable	PTSD		Total	df	p-value
	Nil	Yes			
Probable depression					
Yes	112(26.5%)	54(12.8%)	166(39.3%)	1	0.001
Nil	232(55.0%)	24(5.7%)	256(6.7%)		
Total	344(81.5%)	78(18.5%)	422(100.0%)		
Definite depression					
Yes	51(12.1%)	25(5.9%)	76(18.0%)	1	0.001
No	293(69.4%)	53(12.6%)	346(82.0%)		
Total	344(81.5%)	78(18.5%)	422(100.0%)		

Functional disability

Two hundred and forty-four (57.8%) of the participants had disability scores in the mild range, 17.5% in the moderate range while 20.7% were in the severe range. No PTSD was recorded among those with disability scores in the mild and moderate

ranges. A simple majority of those with disability scores in the severe range had PTSD diagnosis. Significant relationship was found between disability scores in the severe range and having a diagnosis of PTSD (Table 2).

Comorbidity between PTSD and depression

Fifty-four (12.8%) respondents with probable depression had PTSD and 25(5.9%) with definite diagnosis of depression had a diagnosis of PTSD in the study (Table 3).

DISCUSSION

A prevalence rate of 18.5% for PTSD was found in this study. This is quite high and agrees with both local and international studies that evaluated PTSD among trauma or torture victims, using structured diagnostic instruments.^{13,14} A high rate of PTSD among the IDPs qualifies them as a highly traumatized group. A structured diagnostic instrument eliminates possibility of including partial and subclinical PTSD in the diagnosis. Findings from studies that utilized only screening instruments reported higher rates of PTSD. This cuts across both local and international studies on the subject matter.^{4-7,15,16} These have been criticized as being over-inclusive. In contrast, studies among the general population reported low prevalence rates of PTSD such as Iran (1%),¹⁷ USA (7.8%)¹⁸ and Nigeria (0%).¹⁹ In contrast to what Basoglu *et al.*, posited in separate studies,^{20,21} repeated exposure to trauma in the North-east did not result in immunisation against traumatic stress.

Higher rates of PTSD were found among the older age group, those that reported poor living condition, poor general health and respondents with more severe disability scores. Cardozo *et al.*, found that respondents greater than 65years were more likely to develop PTSD after the war in Kosovo.²² This is in agreement with the findings in this study. The increased chances of having PTSD at an older age if exposed to trauma was attributed to effect of ageing and propensity towards having other medical and physical conditions that could compound the debilitating effect of trauma on the elderly. However, a new Danish study posited that women are most vulnerable to PTSD at an older age of 51-55 years while men are most vulnerable to PTSD between age 41-45years.²³ The veracity of this claim was not assessed by our study but the authors highlighted these as effects of reproductive and social responsibility.

Those living in tents and open halls most likely were not having good privacy, adequate social amenities such as water and toilet facilities. These are factors that could precipitate and

perpetuate depressive symptoms. Hygiene would most likely be poor and could predispose to physical illness that could also worsen psychological symptoms and promote disability.

The high prevalence of PTSD among those with severe functional disability is similar to findings in Georgia among conflict-affected persons.²⁴ This adds to the belief that high burden PTSD and disability exist among crisis affected persons. Psychiatric disorders in general have been linked to poorer social and occupational functioning. PTSD in this study was more prevalent among those with more severe forms of functional disability.

Comorbidity between PTSD and depression has been widely reported across literature.²⁵ It is suggested to be due to a shared vulnerability factor,⁴ or due to imprecision in symptom classification into the two discrete categorical diagnoses.²⁶ It is also believed that people with depression are more likely to have traumatic experiences than people without depression. This situation will increase their chances of having PTSD.²⁷ It is possible that the distressing nature of symptoms of PTSD can be enough to precipitate depression. Often, people with PTSD feel detached and disconnected from family and friends, loose interest in previously pleasurable activities and finally come down with Major Depressive Disorder.²⁶ It is also possible that some kind of genetic factors are involved in developing both PTSD and depression.²⁷ Nearly a third of the participants with PTSD had a diagnosis of major depression in this study. Comorbidity translates to greater burden of illness resulting in clinically significant impairment in social and occupational functioning.

There was more PTSD among those without formal education in the study. Low educational level has been reported in literature as a risk factor for developing PTSD.²⁸ However, even though more respondents with no formal education had PTSD, it did not predict the development of PTSD in our study.

CONCLUSION

The study supports previous findings that PTSD is common among trauma survivors and that high rates are found among IDPs. Having a diagnosis of PTSD is significantly associated with functional disability. It also supports evidence that comorbidity between PTSD and major depressive disorder is quite common and should always be sought for when assessing trauma victims for mental health symptoms. The strength of this study lies in the sampling technique, the use of structured

diagnostic instrument and sampling of more than one IDP camp within the North-east region of Nigeria.

Recommendation

Early and regular screening of internally displaced persons will be necessary to discover those at risk of psychiatric complications such as PTSD. This will reduce disability, improve functioning and overall health.

Limitation

Limitations of the study include the cross-sectional nature of the study and that causality between Boko Haram crisis and PTSD was assumed

Conflict of Interest

None declared.

REFERENCES

1. Nwanze C. A short history of Boko Haram. Sahara Reporters 2014 Mar 31; 3.
2. Roberts B, Damundu EY, Lomoro O, Sondrop E. The influence of demographic characteristics, living conditions, and trauma exposure on the overall health of a conflict affected population in Southern Sudan. BMC Public Health. 2010; 10:518
3. Caffo E, Belaise C. Psychological aspects of traumatic injury in children and adolescents. Child Adolesc Psychiatry Clin N Am 2003; 12:493-535.
4. Agbir TM, Audu MD, Obindo JT, Davou FJ, Gyang BA, Adole OO et al. Posttraumatic stress disorder among internally displaced persons in Riyom, Plateau State, Nigeria. J Med Res Pract. 2016;4&5:24-28.
5. Sheikh TL, Mohammed A, Agunbiade S, Ike J, Ebiti WN, Adekeye O. Psycho-trauma, psychosocial adjustment, and symptomatic post-traumatic stress disorder among internally displaced persons in Kaduna, North-western Nigeria. Frontiers in Psychiatry 2014; 5(127)1-4.
6. Roberts B, Ochaka KF, Browne J, Oyok T, Sondorp E. Factors associated with post-traumatic stress disorder and depression amongst internally displaced persons in Northern Uganda. BMC Psychiatry 2008; 8(38):1-9.
7. Njau J.W. Post-traumatic stress disorder among the heads of households of ethnic clashes survivors in the Rift Valley Province, Kenya: a comparative study. Thesis. University of Nairobi; 2005.
8. Nwoga CN, Dakwak SJ, Agbir TM, Audu MD, Goar SG, Tungchama FP et al. Functional Disability and Depression Among Internally Displaced Persons in North-east Nigeria. J Biomedical Research & Clinical Practice 2018(1): 47-56.
9. Derogatis LR, Lipman RS, Rickels K, Uhlenhuth EH, Covi L. The Harvard Trauma Questionnaire (HSC): A self-report symptom inventory. Behav. Sc. 1974;19(1),1 15.
10. The Harvard Trauma Questionnaire (HTQ). A cross-cultural instrument for measuring torture, trauma, and posttraumatic stress disorder in refugees. Developed by The Harvard Program in Refugee Trauma, Massachusetts. 1988. Available online at <http://www.hpvt-cambridge.org>.
11. World Health Organization (WHO) Disability Assessment Schedule 2.0 available online at <https://www.who.int>whodasii>index3>.
12. Robins LN, Wing J, Wittchen HU, Helzer JE, Babor TF, Burke J, et al. the Composite International Diagnostic Interview: An Epidemiological Instrument Suitable for Use in Conjunction with Different Diagnostic Systems and in Different Cultures. Archives of General Psychiatry 1988; 45(12):1069-1077.
13. De Jong JT, Komproe IH, Van Ommeren M, El Masri M, Araya M, Khaled N et al. Lifetime events and posttraumatic stress disorder in 4 post conflict settings. JAMA. 2001; 286:555-562.
14. Nwoga CN, Audu MD, Obembe A. Prevalence and correlates of posttraumatic stress disorder among medical students in the University of Jos, Nigeria. Niger J Clin Pract. 2016; 19:595-9.
15. Agbir TM, Audu MD, Obindo JT, Davou FJ, Gyang BA, Adole OO et al. Depression among Internally Displaced Persons in Riyom, Plateau State, North-Central Nigeria. J Med Res Pract. 2016; 4&5(1):13-17.
16. Mollica R, Caspi-Yavin Y, Bollini P, Truong T, Tor S, Lavelle J. The Harvard trauma questionnaire. Validating a cross-cultural instrument for measuring torture, trauma, and posttraumatic stress disorder in Indochinese refugees. J Nerv Ment Dis. 1992; 180(2):111-6.
17. Mohammad MR, Davidian H, Noorbala AA, Malekafzali H, Naghavi HR, Pouretmad HR et al. An epidemiological survey of psychiatric disorders in Iran. Clinical Practice and Epidemiology in Mental Health. 2005; 1:16.
18. Kessler RC, Sonnega A, Bromet E, Hughes M, Nelson CB. Posttraumatic Stress Disorder in US National Comorbidity Survey. Archives of General Psychiatry. 1995; 52(12), 1048-1060.

19. Gureje O, Lasebikan VO, Kola L, Makanjuola VA. Lifetime and 12-month Prevalence of Mental Disorders in the Mental Health and Well-Being. *Br J Psychiatry*. 2006; 188:465-71.
20. Basoglu M, Paker M, Ozmen E, Tasdemir O, Sahur D. Factors related to long-term traumatic stress responses in survivors of torture in Turkey. *JAMA*, 1994; 272: 357-363.
21. Basoglu M, Paker M, Ozmen E, Tasdemir O, Sahin D, Ceyhanli A, et al. Appraisal of self, social environment and state authority as a possible mediator of posttraumatic stress disorder in tortured political activists. *Journal of Abnormal Psychology*, 1996; 105: 232–236.
22. Cardozo BL, Vergara A, Agani F, Gotway CA. Mental health, social functioning, and attitudes of Kosovo Albanians following the war in Kosovo. *The Journal of the American Medical Association*, 2000; 284: 569–577.
23. Ditleven DN, Elklit A. The combined effect of gender and age on post-traumatic stress disorder: do men and women show differences in the lifespan distribution of the disorder. *Ann Gen Psychiatry*. 2010; 9: 32.
24. Makhashvil N, Chikovani I, Mckee M, Bisson J, Patel V, Roberts B. Mental disorders and their association with disability among internally displaced persons and returnees in Georgia. *J. Trauma Stress*, 2014; 5: 509-18.
25. Flory JD, Yehuda R. Comorbidity between Posttraumatic Stress Disorder and Major Depressive Disorder: Alternative Explanation and Treatment Considerations. *Dialogues in Clinical Neuroscience*, 2015;17(2):141-150.
26. Biehn TL, Contractor A, Elhai JD et al. Relationship Between the Underlying Dimensions of PTSD and Major Depressive Disorder Using an Epidemiological Survey of Developed Ohio National Guard Soldiers. *Journal of Affective Disorders*, 2013;144: 106-111.
27. U.S. Department of Veterans Affairs. Depression, Trauma, and PTSD. PTSD: National Centre for PTSD. Updated August 13, 2015. Accessed 6th April, 2019.
28. Engelhard IM, van den MA, Schouten EG. Neuroticism and low educational level predict the risk of posttraumatic stress disorder in women after miscarriage or stillbirth. *Gen Hosp Psychiatry*. 2006;28(5):414-7.