

Construction and Initial Validation of Trauma Symptom Inventory among Young Adults in South West Nigeria

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ABSTRACT: Contemporary development in Nigeria including insurgency, terrorism, pandemics, frequent vehicular accidents and excruciating poverty have exerted enormous pressure on the mental health of the citizens. While many Nigerians have developed mechanisms to cope with these maladies, some others great difficulty in coping and consequently experience traumatic feelings. Exploratory and descriptive survey research designs were employed for this study. The Sample comprised of 412 Nigerian young adults, with 212 participants for first session and 200 for the second, among them were survivors of fatal accidents, major surgical operations and some internally displaced persons living in Debojo settlement, Ibeju LGA, Lagos State. The instruments used for data collection were Demographic Data Inventory (DDI), Antonia Trauma Symptoms Inventory (ATSI), Psychological well-being scale (PWBS), Trauma Symptom Questionnaire (TSQ), and Becks Hopelessness Scale (BHS). Descriptive statistics, Principal Components Analysis, Cronbach Alpha, and Multiple Regression Analysis were used to analyze the 7 research questions generated, results were tested at 0.05 and 0.01 level of significance respectively. The finding for the ATSI revealed the psychometric quality of the ATSI was very good. The reliability of the one-dimensional trauma scale (ATSI) was $r \geq 0.72$. The rating scale using four categories was observed to be working properly. The inventory is can be used consistently, not too lengthy and evenly distributed with ability to be easier versus harder to agree with. Antonia Trauma Symptom Inventory complies with all the parameters of a valid Trauma scale capable of measuring the level of trauma, in the lives of the Nigerian young adults. The feedback generated from ATSI would enable an evidence based decision on counseling in educational institutions or workplace. This inventory is recommended to be used by clinical counselors and researchers in psychology and educational related fields for the diagnosis of Trauma.

KEYWORDS: Test Construction, Validation, Trauma Symptom, Young Adults, Psychometric

1. INTRODUCTION

In recent times, many contemporary events had exposed every living creature to very serious traumatic issues. The outbreak of the deadly Ebola epidemic in some West African countries in 2013 and the pandemic that ravaged the entire world since late 2019 are good universal examples. Presently in Nigeria, we have many terrorist groups like the Boko-haram in the North east of Nigeria, bandits in the Northern and some Southern parts of the nation. Also, constant attacks by Fulani herdsmen on farmers and increase in the events of kidnapping, abductions, attack by ritualists and worse of all raping of minors in the society. These are very sad and mind bulging incidents that led to insecurity and little or no safety in the country as a whole. All these and many more are the very ugly happenings which are capable of precipitating traumatic symptoms in individuals especially among the young adults in our nation, Nigeria.

A traumatic event is said to be an incident that causes physical, emotional, spiritual or psychological harms to an individual. Someone experiencing the distressing event may feel threatened, anxious or frightened as a result. A traumatized person can suffer a range of emotions both now and after the event and in the long term. They may feel devastated, helpless, shocked, or have difficulty in recounting their experiences. Trauma can also cause physical symptoms. It has been noticed that trauma can have long-term effects on the person's well-being. If these symptoms persist and do not decrease in severity, it can indicate that the trauma has developed into a mental health disorder called Post-Traumatic Stress Disorder (PTSD).

Counselors and psychologists are particularly concerned with helping individuals having psychological and emotional distress to solve their problems. In doing this, they frequently resort to the use of various psychological instruments to better understand the peculiar problems of their clients. The new trauma symptom inventory ATSI developed in

this study can be effectively used by counselors and psychologists to better understand the symptom of trauma in their clients and other people in order to take necessary steps to nip the problems in the bud.

1.1 Statement of the Problem

The instruments available for the evaluation of symptoms of trauma were either not adequate, and some of the items in these scales are culturally biased and do not address local issues. Not all of these existing scales covered all the basic dimensions of contemporary traumatic symptoms and quite a number of existing inventories were mainly developed in the overseas. Hence the problem this study will address is to construct a new comprehensive measure of trauma symptoms inventory and provide scientific evidence or proof of the validity and reliability of the instrument among young adults in Nigerian population.

1.2 Objectives of the Study

The objectives of this study are to:

1. Provide a more robust definition and scope of trauma symptoms.
2. Generate items for the measurement of more robust trauma symptoms inventory

1.3 RESEARCH QUESTIONS

1. What components were revealed when the entire trauma symptoms were considered?
2. What components underlie the dimension of the trauma symptom?

2. LITERATURE REVIEW

The measurements of constructs are not perfect and, any particular observation has some unknown amount of errors associated with that measurement. Measurement error is the difference between a measured value of quantity and its true value (Dodge, 2003). When it is systematic, it affects all observations equally and when it is random, it affects individual observations differently. Random measurement error cannot be completely eliminated, effort should however be made to minimize them as much as possible because they comprise reliability. Reliability which is generally defined as the extent to which a scale is consistent in measuring what it purports to measure. It can also be defined simply as freedom from random error, that is, repeatability of observations. It is the extent to which same results would be obtained from an instrument after repeated trials. However, CTT has the limitation of sample dependency for estimating the test items parameters namely the item difficulty and item discrimination. Charles Spearman was one of the founders of CTT, who was having an understanding that generally, there were going to be errors in test measurements, that these errors are random variable and finally that they could be correlated and indexed, it is hoped that through these correlated scores, improvement can be made, therefore reducing the errors and improving reliability of the tests. The theory assumes that each person has a true score T , which would be obtained if there were no errors in measurement.

Unfortunately it is impossible, for observed score is composed of true score and error score components. This is as expressed in the equation $X = T + E$. CTT is concerned with the relations among the three variables X , T , and E in the population. The reliability of the observed scores, X , denoted as P_X is defined as the ratio of true score variances to the observed score variances.

Validity is the extent to which an instrument measures what it is supposed to, that is, it does what it is intended to do while Reliability is a precursor to the validity of a scale. The process of establishing validity under CTT is viewed as “building” an argument: to what extent can we use this instrument for the intended purpose. (American Psychological Association, 2006) issued a set of standards for validity. It defines four types of: validity, predictive, concurrent, content, and construct validity.

Predictive and concurrent validity are often categorized under “Criterion-related” validity which implies that there is some known comparison. Under the former, a new scale relates to future criterion and under the latter a new scale score can be interpreted as a measure of a latent construct, it predicts relationships with related constructs. It can be convergent validity when it shows expected lack of relationship with other constructs. This CTT’s view of validity is the one which was strictly adhered to in this study. CTT approaches to validity are largely external. They depend on detecting expected relationship with other constructs. The externally oriented kind of validity is sometimes called Nomo-logical span. Attempts made in this study were to establish convergent, divergent and predictive validity which was in line with the view.

2.1 Concept of Post-Traumatic Stress Disorder (Ptds)

Ebulum (2014) described Post-Traumatic Stress Disorder (PTSD) as being characterized by symptoms of re-experiencing aspects of the trauma such as unwanted intrusive images nightmares, avoidance of internal or external reminders of the trauma and chronic hyper-arousal (American Psychiatric Association, 2006). This is a severe condition that may develop after a person is exposed to one or more traumatic events, such as sexual assault, serious injury or the threat of death. The diagnosis may be given when a group of symptoms such as disturbing recurring flash backs, avoidance or numbing of memories of the events and hyper arousal (high levels of anxiety) continue for more than a month after the traumatic event. According to the diagnostic and statistical manual of mental disorders (American Psychiatric Association, 2013).

Today, the general trend in many populations across the globe is fear and anxiety about self and neighbor. Socio-political events have cast a shadow of uneasiness about one’s own security and that of significant others at a personal as well as societal level. Threatening and traumatic events are profoundly stressful. The stress that results from traumatic events precipitates a spectrum of psycho-emotional and physio- pathological events such as terrorist attacks, violent crimes and abuse, military combat, natural disasters, serious accidents or violent personal assaults. Exposure to these events can result in PTSD. (Wild, et. al., 2020).

2.2 Components of Trauma Reactions

Trauma is generally understood as the response to a threatening and traumatic experience, event, or an incident that threatens one’s own life or the bodily integrity of another in close proximity or relationship. In order to qualify a traumatic event, the element of threat or harm to life or body must be present. According to Johanna, et. al., (2019), trauma or post-traumatic stress disorder, PTSD, can be caused by or associated with a wide variety of events, but there are a few common aspects. Typical causes of trauma include a serious threat to one’s life or physical integrity, a serious threat to a wide variety of events, but there are a few common aspects. A serious threat or harm to one’s children, spouse, or other close relatives or friends; but can also include situations such as accidents, major surgery, sexual abuse, war, frequent terrorist attacks, mass violence, police brutality, bullying, domestic violence, being relished in a drug addicted or alcohol fueled environment, life-threatening medical conditions, medication, induced trauma, etc. Trauma have also been detected to be positively correlated to long term exposure to extreme poverty, emotional, and verbal abuse. (King, Tonge & Mullen, 2010)

2.3 Principles of Scale Development

Scale construction is an aspect of psychological measurements and it is concerned with the objective measurement of skills, knowledge, abilities, attitudes, personality traits, and educational achievement. Psychological testing has come from two streams of thought: one, from Darwin, Galton, and Cattell on measurement of individual differences and the second from Herbart, Weber, Fechner and Wundt, and their psycho-physical measurements of a similar construct (Kaplan & Saccuzzo (2018). The principles of scale construction apply to ability, achievement, personality and attitudes; to both dichotomous and multi-category items; and to both judgments and sentiments (Nunally & Bernstein,1994). Scale development is widely adopted on graduate courses in departments of psychology, public health, nursing, education, and marketing and has proved invaluable to applied researchers across the social sciences (De-vellis, 2012). Psychometric experts have developed a number of different measurement theories. These include

classical test theory (CTT) and item response theory (IRT) (Hambleton & Sulaminathan, 2013). An approach which seems to be mathematically similar to IRT but also quite distinctive in terms of its origin and features is represented by the Rasch model of measurement. The development of the Rasch model and the broader class of model to which it belongs, was explicitly based on the requirement of measurement in the physical sciences. The Rasch model is the only IRT model in which the total score across items characterizes a person totally. It has just one item parameter (Threshold) corresponding to each category of an item.

3. METHODOLOGY

3.1 Design and Participants

The first study carried out adopted the descriptive survey research design of the ex-post facto type, which enabled the researcher to collect data from a cross-section of the target population. Also, the second study, employed correlation design which was used in the validation process. For the first stage of this research that is, test construction. A total sample of 212 participants were selected in all. 108 in-patients were selected through stratified random sampling technique from Lagos State University Teaching Hospital LASUTH, O. O. U. Teaching Hospital, OOUTH, General Hospital, I-Ode. 104 respondents were selected through simple random sampling from the internally displaced persons at Debojo settlement Ibeju local government area of Lagos state. For the second study of this research that is, for validation process of the scale constructed, 200 samples in all were selected through stratification sampling from four tertiary medical institutions in south western region of Nigeria. 50 respondents were selected each through random sampling from each institution. These were OOU Teaching Hospital, Federal Medical Centre, Abeokuta, National Orthopedic Hospital, Lagos State, University College Hospital UCH, Ibadan, . .

3.2 Instruments

3.2.1 *The Development of the Preliminary Antonia Trauma Symptoms Inventory (ATSI)*

To construct the Antonia Trauma Symptom Inventory (ATSI). Two research instruments namely; Demographic Data Inventory (DDI) and the Preliminary Trauma Symptom Inventory (ATSI). In addition to the DDI and ATSI, the following three instruments/scales were used in the second study for the validation of the new scales in two parts. These five instruments are namely;

- 1) Demographic Data Form (DDI).
- 2) Preliminary Antonia Trauma Symptom Inventory (ATSI).
- 3) Psychological Well-being Scale by Carol Ryff.
- 4) Hopelessness Scale by Becks.
- 5) Trauma Screening Questionnaires.

3.2.2 *Development of Test Items for ATSI*

In developing the test items for this research work, the following four steps were adopted:

- 1) Test blue print was focused on.
- 2) Items were drafted far ahead of time so that they were not done in a haste to avoid errors.
- 3) The items were given to colleagues and experts to ascertain their qualities.
- 4) Test items developed were not the exact number required. Excess items were made to be available to take care of need.

Moreover, in constructing this test, the researcher preferred to use matching items objective test with 4-pt Likert scale.

4. RESULTS AND DATA ANALYSIS

Research Question 1: What components were revealed when the entire Antonia trauma symptom inventory is considered?

Table 1: Initial Principal Components Analysis of the Antonia Trauma Symptoms Inventory

Component	Initial Eigenvalues			Extraction Sums of Squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	50.578	30.469	30.469	50.578	30.469	30.469
2	18.414	11.093	41.561			
3	15.125	9.112	50.673			
4	11.675	7.033	57.706			
5	8.018	4.830	62.537			
6	6.643	4.002	66.538			
7	5.111	3.079	69.617			
8	3.812	2.296	71.913			
9	3.595	2.166	74.079			
10	3.510	2.114	76.193			
11	3.134	1.888	78.081			
12	2.428	1.463	79.543			
13	1.941	1.169	80.713			
14	1.896	1.142	81.855			
15	1.703	1.026	82.881			
16	1.437	.866	83.746			
17	1.277	.769	84.516			
18	1.212	.730	85.243			
19	1.114	.671	85.917			
20	1.081	.651	86.568			

Table 1 showed that one component only underlie the Antonia Trauma Symptom Inventory (ATSI). This one component consists of the dimensions of the ATSI and they are identified earlier on as dissociation, intrusive thoughts, depression and anxiety. The research question stated that what components are revealed when the whole domain of Antonia Trauma Symptoms Inventory was considered.

Exploratory Factor Analysis by means of a Principal Component Analysis with Eigen Values greater than 4 and Varimax rotation was carried out for the entire trauma symptoms inventory. The result showed that it was only one dimension that was extracted for the scale. The dimension could be thought of as comprising the thirteen components of the trauma inventory, as was already conceptualized and identified in this study.

Research Question 2: What components underlie the dimension of Antonia trauma symptom inventory?

Rotation Method: Varimax with Kaiser Normalisation.

The Fig. 1 shows the result of the scree plot of the factor loadings of the initial principal components analysis of the Antonia trauma symptom inventory. The components are presented in Table 2. Table 2 showed that thirteen items in the scale were retained since each one of item had commonality greater than 5.

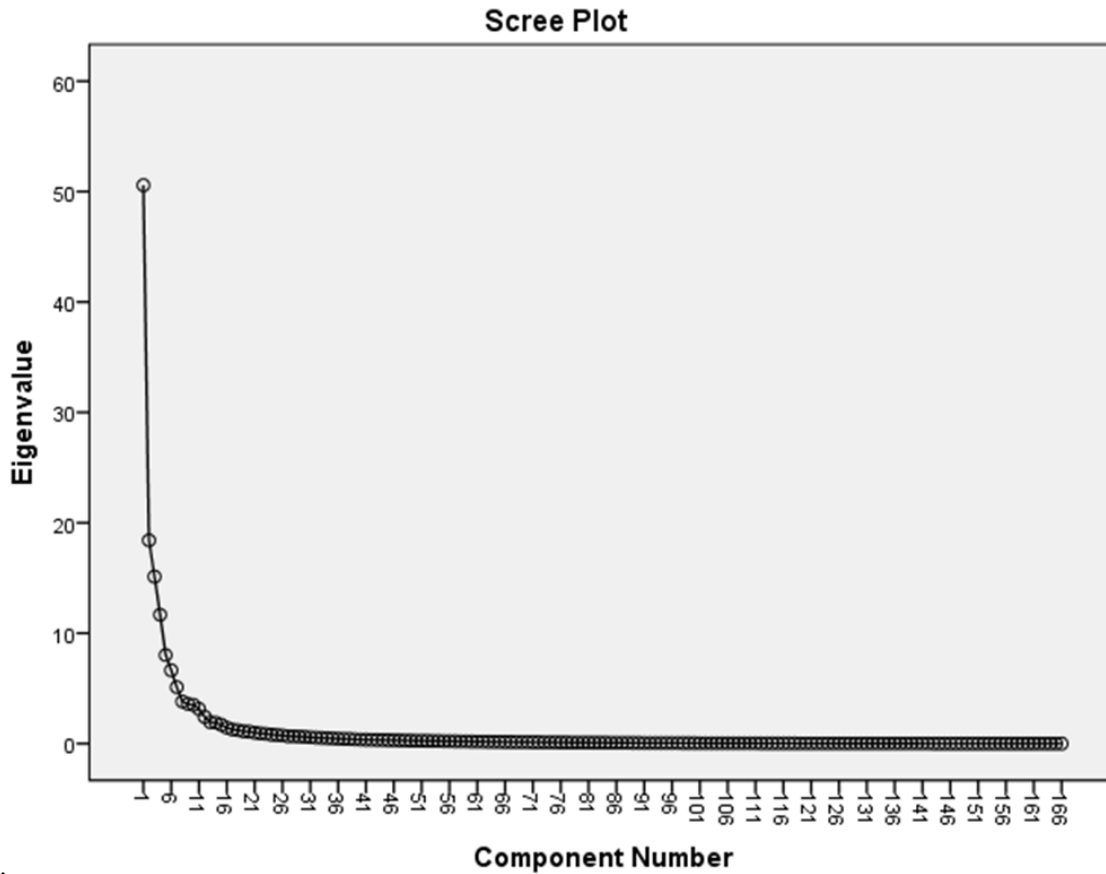


Figure 1: Extraction method: Principal Component Analysis.

Table 2: Initial Principal Component Analysis and Factor loading of the one Dimension revealed for ATSI.

S/N	Component	Component Matrix
1	VAR00125	.794
2	VAR00140	.791
3	VAR00129	.784
4	VAR00128	.767
5	VAR00133	.758
6	VAR00139	.757
7	VAR00158	.748
8	VAR00151	.747
9	VAR00127	.745
10	VAR00101	.741
11	VAR00138	.735
12	VAR00082	.734
13	VAR00100	.732

5. DISCUSSION OF RESULTS

This study is mainly based on construction of a new Trauma test that will capture all the contemporary issues causing trauma in the lives of the youths in our Nation and the results revealed from Table 1 shows that after the pooled items were subjected to Factor analysis, only one dimension was found to underline the ATSI as a whole. This comprises

of thirteen different items of trauma symptoms that were summed under four of the components that were earlier on conceptualized in the study. These four components are namely, Dissociation, Depression, Intrusive Thoughts and Anxiety. Scale items with commonalities less than 5 were discarded and also items which cross loaded under more than one components were rejected as well.

After this process 13 items were retained and these were Dis 02, Dis 17, Dis 06, Dis 05, Dis 10, Dis 16, INT 17, INT 10, Dis 04, DEP 12, Dis 15, ANX 17, DEP 11. These items constitute ATSI. The development of the new Trauma scale namely ATSI takes into consideration, of various contemporary events evolving in the environment in recent times, many of which were not common in the past. These really called for the modification of the domains of existing trauma symptoms and the instrument used for the assessment beforehand. For someone to be referred to as been traumatic, the person must be displaying some symptoms like anxiety, intrusive thoughts, depression and dissociation at the onset. So when the trauma is becoming aggravated and the individual is displaying some tendencies of going into the abuse of substance, anger, defensive avoidance and abnormal sexual behavior then it could be concluded that the person is already having post-traumatic stress disorder. The only one extracted component explained 30.47 percent of the variance in the data as shown in the Table 1.

Various studies that were carried out in the past showed that symptoms of trauma include nightmares or flashbacks, avoidance of situations that bring back the trauma heightened by reactivity to stimuli, anxiety or depressed mood. Such people may experience behavioral agitation, irritability, hostility, self-destructive behavior or social isolation. Mood change, like loss of interest in sexual relationship, emotional detachment or intrusive thoughts are also common among those undergoing acute trauma experiences. Among the scholars who rated Trauma Symptoms Inventory, a commonly used self-report measure constructed by Briere, 1995, were (Elhai, Gray, Kashdan & Franlin, 2005). They indicated that trauma related symptoms included those arising from sexual and physical assault, spousal abuse, combat, war exposure, major accidents, natural disasters and a history of childhood abuse and terrorism.

6. RECOMMENDATIONS

Based on the findings and conclusion of this study, the following recommendations were made:

1. Counselors and Psychologists should utilize the new trauma inventory ATSI as part of their psychological instruments to better their understanding in teasing out problems of their clients.
2. The Medical Practitioners and mental health workers should make use of this newly developed ATSI in order for them to know the type of care that is required by the patients presenting the symptoms of trauma nature.
3. Other health workers like the nurses and other paramedics should apply the instrument to be able to detect how trauma can affect the rate of improvement or otherwise in the patients they are caring for.
4. Government and policy makers should realize the need to establish Counselling units in the big hospitals and health centers in both urban and rural areas to as to provide psychological, physical and other succor to victims of such symptoms.
5. Non-governmental organization, Civil Society Organizations and human right societies should also employ the use of the inventory to measure the trauma level of their clients so as to know how to provide aids to victims of trauma precipitating events that may occur.
6. Anyone that has been exposed or had gone through traumatic experience should make use of the inventory in order to know the level of the trauma he/she has suffered in order to take the appropriate decision on how to seek help in time before the situation aggravates.

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