

A Validation of the Adverse Childhood Experiences Scale in Nigeria

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Abstract

Adverse Childhood Experience International Questionnaire (ACE-IQ) was developed to measure childhood trauma in adolescents and adults. The present study examined concurrent validity of ACE-IQ and Childhood Trauma Questionnaire (CTQ) using responses of 253 prison inmates on both instruments. The instruments were administered concurrently to purposively selected inmates in Agodi Prison, Ibadan. Correlations between the total score of the ACE-IQ and the Childhood Trauma Questionnaire (CTQ) were significant. Correlations between each subscale of the ACE-IQ and the CTQ were significant. A 2x2x2x2 factorial analysis of gender, age, educational level and marital status on adverse childhood experiences revealed that male, young, low on education and divorced (MYLD) prison inmate were more on adverse childhood experience ($n=4$, $x = 108$, $SD=6.9$). These results indicated that the ACE-IQ and CTQ have concurrent validity and ACE IQ is a reliable and valid index of the adverse childhood experience in the study population.

Keywords: Adverse childhood experience questionnaire, Childhood Trauma Questionnaire, prison inmates, concurrent validity.

1. Background

In the last few years, the activities of the United Nations (UN) and other global organization especially world health organization have been focused on how to improve health among citizen of the world. To this end, efforts are directed towards health care system, raising standard of living and globalization to bring about synergy among nations in order to enhance better health care. These efforts of the UN reflect prominently in the Millennium Development goal document (United Nations Millennium Development Goal, 2006).

Adverse Childhood Experiences (ACE) refer to some of the most intensive and frequently occurring sources of stress that children may suffer early in life. Such experiences include multiple types of abuse; neglect; violence between parents or caregivers; other kinds of serious household dysfunction such as alcohol and substance abuse; and peer, community and collective violence. It poses the question of whether, and how, childhood experiences affect adult health decades later. The findings from the ACE Study provide a remarkable insight into how we become what we are as individuals and as a nation. They are important medically, socially, and economically. ACEs are surprisingly common, happen even in “the best of families” and have long-term, damaging consequences.

The ACE Study reveals a powerful relationship between emotional experiences as children and physical and mental health as adults, as well as the major causes of adult mortality and criminality. It documents the conversion of traumatic emotional experiences in childhood into organic disease later in life. How does this happen, this reverse alchemy, turning the gold of a new-born infant into the lead of a depressed, diseased adult? The Study makes it clear that time does not heal some of the adverse experiences.

The Adverse Childhood Experiences Study started in the mid-1980s in an obesity program that had a high dropout rate. The first of many unexpected discoveries was that the majority of the dropouts actually were successfully losing weight. Accidentally it was learned from detailed life interviews of 286 such individuals that childhood sexual abuse was remarkably common and, if present, always antedated the onset of their obesity. No one previously had sought this kind of medical information from them but many patients spoke of their conscious awareness of an association between abuse and obesity.

Adverse childhood experiences (ACEs) have been consistently linked to psychiatric difficulties in children and adults. Children living in families with alcohol-abusing parents and psychopathology are more likely than other children to have an unpredictable home life and to carry a burden of secrecy as a result of their attempts to hide the alcohol abuse from others. These children also have an increased risk of a variety of other adverse childhood experiences, including being abused or neglected, witnessing domestic violence, and being exposed to drug-abusing, mentally ill, suicidal, or criminal household members. The risk of alcoholism, psychopathology, and other medical and social problems has been reported to be greater among adult children of alcoholics than among other adults.

Adverse childhood experiences have not been documented in developing countries. This results from lack of clear understanding of adverse childhood experiences and instruments that measure constructs related to the definition. The Adverse Childhood Experience International Questionnaire (WHO, 2009), and Childhood Traumatic Questionnaire (Bernstein and Fink, 1998) were based on the scientific model of adverse childhood experience. In order to effectively use the adverse childhood experience in research or for a wide range of

practical applications, it is necessary to have an instrument that will accurately and efficiently assess the construct. The purpose of this study was to validate the adverse childhood experience international questionnaire with Childhood Traumatic Questionnaire. Concurrent validity requires that the criterion test (CTQ) must have been validated, which has been done (Gerdner and Allgulander, 2009) and that the instruments measure the same construct, which in this case is adverse childhood experience.

2. Method

The study adopted a cross sectional design was conducted in Agodi prison in Ibadan, Oyo State, Nigeria. The prison was located in Ibadan North Local Government area and the largest in the State. It was built in 1894 has a total of 921 inmates out of which 794 were awaiting trial.

Prospective participants were required to fill an inclusion-exclusion criteria including;

- (1) Being inmate of the prison irrespective of the duration of sentence or awaiting trial,
- (2) English literate and
- (3) Personally willing to participate after an informed consent process. Even though over 921 inmates were fully registered at the Prison, only about 300 of them fulfilled the inclusion criteria, and were purposively included as participants.

Of these, 253 questionnaires were correctly filled and returned, representing 84.3 % response rate. They made up of 220 (87%) males and 33 (13%) females. The participants' age ranged between 20 and 53 years with a mean age of 30years. 181(72%) were Yoruba, 26(10.2%) were Hausa and 30(12%) were Igbo and 16(6%) belong to other ethnic group. Educational qualification indicated that 35(14%) had no formal education, 12(5%) had less than primary school, 38(15%) completed primary school, 127(50%) completed secondary school, 39(15.4%) completed college or university education and 2(1%) had postgraduate degree. 102(40.3%) of the participants were married,42(17%) were living as a couple,7(3%) were divorced/separated,100(40%) were single and 2(1%) were widowed.

3. Instruments

Adverse childhood experience international questionnaire, ACE-IQ was designed to measure adverse childhood experience. It is a 43- item scale. The scale was developed by according to model of adverse childhood experience by World Health Organization (2009). The questionnaire has seven sections; Section A (0) had demographic information such as sex, age, education level, civic/marital status and work status in the last 12 months. Section B (1) was 5-item eliciting information on marriage, which had yes or no response format. Section C (2) had 5 items generating information on relationship with Parents/Guardians with 5 likert response format for first two items ranging from never (1) to always (5) while the last three items had 4 graduating response format ranging from never(1) to many times(4).Section D consisted of 16- item eliciting information on family environment with yes or no response format for the first five items and 4 likert format ranging from never(1) to many times(4) for eleven. Section E(6) comprised of 3-item on peer violence with 4 graduating response format for item 1 and 3 and second item on 7 likert response format. Section F (7) measured witnessing community violence with 3-item and 4 likert response format ranging from never (1) to many times (4). Section G(8) had 4 items eliciting information on exposure to war/collective violence with 4 graduating response style from never (1) to many times (4).

The Childhood Trauma Questionnaire (CTQ) was developed from a 70-item retrospective questionnaire for which participants were required to rate the frequency (0- never true to 5-very often true) of abuse and neglect events that took place when they "were growing up". It was developed by Bernstein and Fink (1998). In further studies, the length of the scale was reduced to 28 items based on exploratory and confirmatory factor analyses. The short version of the CTQ assesses emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. Emotional abuse refers to verbal assaults on a child's sense of worth or well-being, or any humiliating, demeaning, or threatening behaviour directed toward a child by an older person. Physical abuse refers to bodily assaults on a child by an older person that pose a risk of, or result in, injury. Sexual abuse refers to sexual contact or conduct between a child and an older person, including explicit coercion. Emotional neglect refers to the failure of caretakers to provide basic psychological and emotional needs, such as love, encouragement, belonging and support. Physical neglect refers to failure to provide basic physical needs including food, shelter, and safety. Each scale is presented in a 5-point Likert-type scale ranging from 5 to 25. The final scores are classified according to manual's cut-off scores for the severity of abuse and neglect: "none to minimal," "low to moderate," "moderate to severe,"and "severe to extreme". Three additional items compose the Minimization/Denial subscale for detecting socially desirable responses or false-negative trauma reports. The total CTQ score takes into account the severity of multiple forms of abuse and neglect. The internal consistency coefficients ranged from 0.61 (physical neglect) to 0.95 (sexual abuse).

4. Data collection

The researcher obtained permission from Prison Authority to conduct the study. He contacted the Prison Psychologist and welfare officers. Besides this, I participated directly in group counselling session for the inmates to talk about problems they encountered in their everyday lives. At that time, I was given opportunity to have direct contact with the inmates. Building rapport was part of the whole process of collecting data. I conducted prisons visits. During rapport building, I participated in daily life with them and asked questions starting from their everyday life and background. The researcher explained purpose of the study to the prospective participants and made them realized their right to withdrawal from the study, any time during the study. After a few meetings, I could start asking questions about their childhood experiences. However, once they trusted me; they told me without asking them about their adverse childhood experience. Some cases cried and expressed resentment about their past lifestyle. I then purposively administered questionnaire to those meet the inclusion and exclusion criteria. They were allowed to read the informed consent process and attest their signature for willingness to participate. There was no time restriction. A total of 300 of them fulfilled the inclusion criteria, and were purposively included as participants. Of these, only 253 questionnaires were correctly and completely filled. Completed questionnaires were sorted, coded, and entered into the Statistical Package for Social Sciences for data analysis.

5. Results

Alpha coefficient of score on marriage, relationship with Parents/Guardians, Family environment, peer violence, witnessing community violence and exposure to war/collective violence were found to be 0.65, 0.71, 0.72, 0.69, 0.81 and 0.79 respectively. Internal consistency for the 38 items excluding demographic variables yielded 0.80. Cronbach's α coefficients for the scores on all 38 items of the ACE IQ and the scores on all the 31 items of the CTQ were .80 and .91, respectively.

A Pearson product moment correlation was calculated between the scores on the total scale of the ACE IQ and the scores on the CTQ for the 253 participants who had both scores. A positive correlation, $r = +0.72$ ($r^2 = .52$) was found between the scores on the ACE IQ and the scores on the CTQ. This relationship was significant at the .01 level. The correlation coefficient, when interpreted as an index of the magnitude of the effect, indicates a large effect size.

Pearson product moment correlations were also calculated between the scores on each one of the subscales of the ACE IQ and the scores on the CTQ. A positive correlation of sexual abuse $r = 0.65$ ($r^2 = .43$) and physical neglect $r = 0.52$ ($r^2 = .27$) of CTQ on family environment of ACE IQ was found. This relationship was found to be significant at the .01 level of significance and with large effect size. A positive correlation $r = +0.49$ ($r^2 = .24$) was found between the scores on the Peer violence of ACE IQ and physical abuse of CTQ. This relationship was found to be significant at the .01 level of significance and with large effect size. A positive correlation of community violence ($r = 0.56$ ($r^2 = .31$)) and exposure to war/collection violence ($r = 0.62$ ($r^2 = .38$)) of ACE IQ on emotional abuse of CTQ was observed. This relationship was found to be significant at the .01 level with a large effect size. Relationship with parents/Guardians of ACE IQ had positive correlation with emotional neglect of CTQ ($r = .23$ ($r^2 = .05$)). This relationship was found to be significant at the .05 level with a small effect size. Mean and standard deviation by gender and total of subscale of ACE IQ and CTQ was analysed (see table 2 and 3).

A 2x2x2 factorial analysis of gender, age, educational level and marital status on adverse childhood experiences revealed that male, young, low on education and divorced (MYLD) prison inmates had the highest mean on adverse childhood experience ($n = 4$, $x = 108$, $SD = 6.9$). The was seconded by male, old with high educational status but living as a couple (cohabitation) ($n = 5$, $x = 90.4$, $SD = 8.7$). Female respondents that are young, low on education and married ranked third on adverse childhood experience ($n = 9$, $x = 87.3$, $SD = 2.1$) while old female with high educational qualification and living as a couple ranked fourth.

The group with fifth rank on adverse childhood experience are old males with high educational qualification and married ($n = 20$, $x = 82.6$, $SD = 18.8$). Young males with low educational qualification and living as a couple was ranked sixth on adverse childhood experience ($n = 6$, $x = 80.5$, $SD = 25.5$) while old males with low educational qualification and married took the seventh position ($n = 51$, $x = 78.7$, $SD = 18.9$). Young males with low education and married got the eighth position on adverse childhood experience ($n = 26$, $x = 76.5$, $SD = 14.6$). Old male with low education and living as a couple had the ninth position ($n = 20$, $x = 75.5$, $SD = 18.2$). However, the group with the least likelihood to experience adverse childhood experience was young female with high education and living as a couple ($n = 3$, $x = 53$) (table 4).

6. Discussion

The present study examined validity of adverse childhood experience international questionnaire with Nigeria population. The total score and the subscales of the ACE IQ correlate with the CTQ, indicating that the ACE IQ can be used to assess adverse childhood experience. One of the major findings was the factorial combination

which revealed that that male, young, low on education and divorced (MYLD) prison inmate were most likely to experience adverse childhood experience. An advantage of the ACE IQ is the ability to focus on the components of the childhood trauma construct. However, it is evident that further research needs to be done with the ACE IQ and in the general field of adverse childhood experience research.

There are difference in ACE IQ and CTQ, but they measure the same construct. ACE IQ has six subscales excluding demographic variable while CTQ has five subscales. CTQ is a 28-item retrospective self-report questionnaire with strong psychometric properties for clinical and non-clinical samples that has been used in many different countries but ACE IQ is recently gaining attention in few countries. However, this analysis also confirms that all the key ACE IQ scale items remain very important and make discrete independent contributions, even when many other factors are considered. Mean obtained by gender on ACE IQ revealed norm for interpretation of scores on the scale.

The study data were obtained from samples of prison inmates in Nigeria, using an analytical technique that was appropriate and robust for this sample. Although it is difficult to generalize and to apply the findings to other population, there are nevertheless some implications both for the use of the scale cross-culturally and inform policies and programmes designed to reduce ACEs and promote safe, stable and nurturing relationships between children and their parent or caregivers in Nigeria and other African countries.

This method of assessing adverse childhood experience may be considered to be adequate. Although the data are based entirely on self-reporting, the method is suitable for obtaining estimates of childhood trauma experiences in relation to anti-social behaviour and criminality. Furthermore, the method may be used to identify psychosocial factors in health risk behaviour. The scale has also been judged to be useful for assessing the predisposition of individuals to criminality in future.

By and large, these results show that the ACE IQ is a reliable and valid index of the adverse childhood experience in the study population. Individuals who respond to the questions on the scale are given points on each of the scale items and on the six dimensional factor structure. In addition, the scale appears appropriate for general descriptive purposes, and our findings shows that quantitative measurement of some aspects of adverse childhood experience is possible with relatively simple methods. It is desirable to expand the scope of the results of this study to cover a wider population. Further evaluations of the scale need to be conducted on other population groups in the country, with the aim of improving and refining the method. This should provide additional information, especially on the scale's reliability and validity.

Table 1
Correlation of subscale of ACE IQ and CTQ

	1	2	3	4	5	6	7	8	9	10	11
Marriage	---										
Relationship with parent/guardian	.15*	---									
Family environment	.21*	.35*	---								
Peer violence	.34*	.42*	.51*	---							
Community violence	.10	.11*	.45*	.62*	---						
Exposure to war/collective violence	-.27*	.14	.16	.57*	.73*	---					
Emotional abuse	.42*	.32*	.13	.20	.56*	.62*	---				
Physical abuse	.13*	.22*	.31*	.49*	.36*	.35*	.42*	---			
Sexual abuse	.32*	.38*	.65*	.34*	.40*	.24*	.65*	.17*	---		
Emotional neglect	.51*	.23**	.24*	.46*	.21*	-.29*	.75*	.27*	.67*	---	
Physical neglect	.32*	.26*	.52*	.42*	.10	.17	.60*	.34*	.53*	.35*	---

*P<.01

Table 2
Mean and standard deviation by gender and total (ACE IQ)

	N	MEAN	SD
Marriage			
Male	220	2.6	1.3
Female	33	1.8	0.6
Total	253	3.8	1.4
Relationship with parents/guardian			
Male	220	15.7	5.7
Female	33	11.2	3.7
Total	253	14.8	4.6
Family environment			
Male	220	25.5	7.8
Female	33	14.6	6.5
Total	253	22.6	8.1
Peer violence			
Male	220	5.9	3.6
Female	33	3.8	2.2
Total	253	5.2	3.1
Community violence			
Male	220	3.1	1.8
Female	33	2.9	1.4
Total	253	3.4	2.0
Exposure to war/collective violence			
Male	220	3.6	2.1
Female	33	3.1	2.0
Total	253	3.7	2.2
ACE IQ			
Male	220	45.8	17.5
Female	33	36.9	16.4
Total	253	46.3	23.5

Table 3
Mean and standard deviation by gender and total (CTQ)

	N	MEAN	SD
Emotional abuse			
Male	220	3.6	1.5
Female	33	2.8	0.9
Total	253	4.8	1.3
Physical abuse			
Male	220	4.9	1.5
Female	33	1.6	0.9
Total	253	3.8	1.6
Sexual abuse			
Male	220	3.5	0.8
Female	33	2.6	0.7
Total	253	3.6	1.1
Emotional neglect			
Male	220	2.9	0.9
Female	33	1.8	0.7
Total	253	5.2	2.1
Physical neglect			
Male	220	3.1	1.8
Female	33	2.9	1.4
Total	253	3.4	1.5
CTQ			
Male	220	3.8	1.5
Female	33	2.9	1.4
Total	253	4.3	2.5

Table 4
Summary Of 2x2x2x2 Factorial Levels Of Sex, Age, Education And Marital Status On Adverse Childhood Experience Among Prison Inmates

Sex	Age	Educational status	Marital status	Interaction	Adverse Childhood Experience			Ranking On X	
					N	X	SD		
Male	Young	Low	Married	MYLM	22	76.1	14.5	8 th	
			Cohabitation	MYLC	6	80.5	25.5	6 th	
			Divorced/separated	MYLD	4	108	6.9	1 st	
		High	Single	MYLS	61	68	20	12 th	
			Widowed	MYLW	2	73		10 th	
			Cohabitation	MYHC	2	54		18 th	
	Old	Low	Single	MYHS	5	62.6	13.1	14 th	
			Married	MOLM	51	78.7	18.9	7 th	
			Cohabitation	MOLC	20	75.5	18.2	9 th	
		High	Single	MOLS	19	70.2	23.1	11 th	
			Married	MOHM	20	82.6	18.8	5 th	
			Cohabitation	MOHC	5	90.4	8.7	2 nd	
Female	Young	Low	Divorced/separated	MOHD	3	63		13 th	
			Married	FYLM	9	87.3	2.1	3 rd	
			Cohabitation	FYLC	3	61		15 th	
		High	Single	FYLS	12	54.2	5.6	17 th	
			Cohabitation	FYHC	3	53		19 th	
			Single	FOLS	3	59		16 th	
	Old	High	Cohabitation	FOHC	3	87		4 th	
		Total				253			

Keys: M= male, F=female, Y=young, O=old, L=low, H=high, M=married, C=cohabitation, S=single, D=divorced/separated, W= widowed.

References

- Bernstein DP and Fink L (1998). Childhood Trauma Questionnaire. A retrospective self-report. Manual. San Antonio, TX: The Psycho- logical Corporation, Harcourt Brace & Company.
- Gerdner A, and Allgulander C (2009) Psychometric properties of the Swedish version of the Childhood Trauma Questionnaire-Short Form (CTQ-SF). Nord J Psychiatry 63: 160–170. doi: 10.1080/08039480802514366
- United Nations Millennium Development Goals (2006).The Millennium Development Goals Report 2006. <http://mdgs.un.org/unsd/mdg/Resources/Static/Products/progress2006/>
- WorldHealthOrganization(2009).www.who.int/violence_injury.../adverse_childhood_experiences/en

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