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RESEARCH ARTICLE

Childhood Adversity as a predictor of Depression and Suicidality among Adolescents in Calabar, Nigeria

Bassey Eyo Edet[1], Emmanuel Aniekan Essien[2], Franklyn Ifeanyi Eleazu[3], Ginini Edward Atu[4], Isaac Olushola Ogunkola[5]

[1] Clinical Services, Federal Neuropsychiatric Hospital, Calabar, Nigeria, [2] Department of Psychiatry, University of Calabar, Nigeria, [3] Tees Esks and Wear Valley NHS Foundation Trust , County Durham, United Kingdom, [4] Research Unit, Federal Neuropsychiatric Hospital, Calabar, Nigeria, [5] Public Health Department, University of Calabar, Nigeria

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Background

Child abuse occurs worldwide and negatively impacts the health, functioning and psychological wellbeing of victims. Its effect on adolescent mental health has been insufficiently explored in Nigeria. The objective of this study was to determine the impact of child abuse on the occurrence of depression and suicidality among Nigerian adolescents.

Methods

A cross-sectional study was conducted among 327 secondary school students in Calabar, Nigeria. Beck's depression inventory, the Childhood Trauma Questionnaire (SF) assessing emotional abuse, physical abuse, sexual abuse, emotional neglect and physical neglect, and questions on suicidality from the Nigerian version of the Global School-based Student health survey (GSHS) were administered.

Results

Sexual abuse (41.3%) was the commonest type, followed by physical neglect (38.5%) and physical abuse (30.0%). Over two-thirds (67.3%) had experienced at least one type of abuse. All types of abuse emerged as significant predictors of depression, with physical abuse being the strongest predictor. Also, all abuse types predicted various self-harming behaviours (considering, planning or attempting suicide and deliberate self-harm). There was a stepwise increase in the risk of depression and suicidal behaviour with the experience of more abuse types. All dimensions of abuse were significantly correlated, with the strongest association between physical and emotional neglect.

Conclusion

Child abuse predicts depression and suicidality and is worse with multiple types of abuse. Public health interventions to prevent childhood trauma and screen for mental disorders in victims should be instituted in Nigeria.

Introduction

Adolescents worldwide experience a high rate of neuropsychiatric disorders, accounting for 16% of the burden of illness and injury among persons aged 10 to 19 years.[1] The Nigerian population is predominantly young, with about 43.69 per cent aged 0 to 14 years.[2] Africa has a similar age structure, and it is also the only global region where young people are increasing; thus, the potential impact of mental disorder looms large.[3]

Adolescence is a transition stage during development that is sensitive to traumatic experiences.[4] Adverse physical, emotional, and social factors, including poverty, abuse, and various forms of violence, negatively impact

physical and mental wellbeing during this period, with consequences throughout life.[5] The more risk factors adolescents experience, the poorer the outcome.[6,7]

Globally, depression is the leading cause of illness and disability among adolescents.[8] Suicide, a fatal outcome of depression, is the fourth leading cause of death in 15-19-year-olds.[9] Over 67,000 adolescents died in 2015 as a result of self-harm.[10] Also, more than 90% of adolescent suicides occur in Low-and Middle-Income Countries (LMICs), including Nigeria, where nearly 90% of the world's adolescents live.[1]

Children and adolescents differ in their responses to traumatic experiences, shaped by developmental level, previous experience and other factors.[11] However, nearly all express some kind of distress or behavioural change following traumatic experiences.[11–13] When severe, there is a markedly increased risk for depression in childhood and later life.[11,14,15] There are also direct and indirect links between emotional abuse, physical abuse, sexual abuse, and suicide.[11,12]

Physical abuse sometimes comes in the form of corporal punishment for the supposed good of the child.[16] In most Nigerian communities, it is a culturally-sanctioned practice that is thought necessary for controlling bad behaviour.[17,18] However, its application and legal status remain controversial worldwide.[16,19] Fifty-four countries globally have enacted laws that prohibit corporal punishment.[16] North America and the United Kingdom are exceptions and have laws distinguishing abuse from punishment, offering parents, guardians, and teachers protection from prosecution.[16] Legal stipulations differentiating them concur that severe punishment with a high risk of harm constitutes child abuse.[16] While agreement on the necessity or otherwise of corporal punishment might remain elusive, the legal consensus is stronger and more uniform in the censure of severe punishment, which however remains inconsistently defined.[16,20]

The enactment of laws to protect the child and prevent abuse in Nigeria has a chequered history. In 1993, the first bill on child rights suffered opposition from religious and more traditionally-minded citizens, stalling its endorsement.[21] After modification by a committee aiming to promote harmonisation with Nigerian culture and religion, it was rejected again for similar reasons in 2002. Nonetheless, it passed into law in 2003, following pressure from national stakeholders and international organisations.[21] The act entrenches the protection of children from all forms of abuse and neglect. Marriage below the age of 18 years, and interestingly, all forms of corporal punishment were banned.[21,22] Since then, implementation has been generally poor, with some Nigerian states outrightly rejecting the law, reflecting the

persistence of dissent.[21] Child marriage, a perennially thorny issue in the local socio-political sphere, is accepted for cultural and religious reasons and remains legal in some Nigerian states.[23]

The effect of child abuse on depression and suicidality has been established, especially in developed countries but supporting research is very scarce in Nigeria. Data exploring their association is scant in other sub-Saharan nations. Also, few studies have examined the prevalence of some subtypes like sexual abuse. Child abuse and maltreatment should be investigated among Nigerians as it is essential for driving pertinent socio-political conversations, policy development and legal safeguards. The purpose of this study was to determine if childhood trauma predicts depression and suicidal behaviour among adolescents in Nigeria. We also sought to determine the effect of experiencing multiple types of abuse and the association between the various types of abuse.

Methodology

This was a cross-sectional study in Calabar, the capital of Cross River State. The city has two Local Government Areas, Calabar South and Calabar Municipality, which serve as administrative sub-divisions. Calabar-South is the older district located near the Calabar River and is the homestead of Calabar's King. On the other hand, Calabar Municipality is comparatively newer, faster-developing and more affluent.[24] The metropolitan city is home to several educational institutions at the primary, secondary, and tertiary levels.

According to the state ministry of health, there were 106 secondary schools in Calabar; 26 were government-owned, and 80 were privately-owned. We used the multistage cluster sampling technique to increase the sample's representativeness. One Public and one private school were randomly chosen from each local government, yielding four schools. Nigerian secondary schools have six levels: junior secondary school (JSS) I-III and senior secondary school (SSS) I-III. Also, each level usually has arms with alphabet designations, the number depending on the school population. Thus, a school with three arms of the SSS III class would name them SSSIIIa, SSSIIIb and SSSIIIc. One senior-level and one junior-level class were randomly selected in each public school, while two senior-level and two junior-level classes were randomly chosen from the private schools. The number of classes selected in the private schools was higher because we found that the class size in public schools was roughly two times larger.

Adolescent students between the ages of 10 and 19 were considered eligible, and those who withheld consent were excluded from participation.

Study Instruments

1. Childhood Trauma Questionnaire (SF): The Childhood Trauma Questionnaire was designed by Bernstein and Fink to assess adverse experiences during childhood.[25] Originally a 70-item self-report tool,

it was later shortened to a 28-item version.[25] It assesses childhood trauma in the following domains: physical abuse, emotional abuse, sexual abuse, physical and emotional neglect. A person is rated as having none, low, moderate or severe trauma for each domain. For bivariate analysis, a positive case was defined as moderate to severe trauma. It is one of the most widely used instruments for the assessment of childhood trauma and has been validated for use in Nigeria.[26]

2. Becks Depression Inventory-I (BDI-I): This is a 21-item self-rated instrument designed to screen depression. It is one of the most popular instruments used worldwide in over 7000 studies.[27] Each item has four possible answers, rated on a Likert scale from 0 to 3. The scale has a maximum score of 60. In order of severity, a score of 1-10 is considered normal, 11-16 is regarded as mild mood disturbance, 17-20 is borderline clinical depression, 21-30 is moderate clinical depression, 31-40 is severe clinical depression, and over 40 indicates extreme depression. In bivariate analysis, respondents with moderate to severe depression were considered positive cases. We used the English version of the instrument which has good psychometric properties and has been validated for use in Nigerian adolescents.[28]

3. The Nigerian version of the Global School-based Student Health Survey (GSHS): The GSHS was initiated in 2001 by the World Health Organization in collaboration with UNESCO, UNICEF and the CDC.[29] Since 2003, Ministries of Health and Education have been using the survey to systematically obtain information on health risk and protective factors among adolescents in the school setting. Four questions concerning suicide were adapted from the Nigerian version for this study. They inquired whether the respondent had ever considered, planned or attempted suicide or engaged in acts of deliberate self-harm.

Procedure: The study objectives and confidentiality of data collection were discussed with the students in each selected class. Participation was optional, and students were encouraged to be as honest as possible with their answers. Trained research assistants then administered the study questionnaires. This process was repeated in each class of all selected schools until data collection was completed. Data collection commenced in March 2018 and was completed in April 2018.

Table 1. Prevalence of childhood trauma in 5 domains (N=327)

CTQ scales	Total (%)	Mean ±SD
Emotional abuse	67 (20.5)	9.25(4.34)
Physical abuse	98 (30.0)	8.33(3.84)
Sexual abuse	135 (41.3)	8.54(4.59)
Emotional neglect	93 (28.4)	11.19(8.95)
Physical neglect	126 (38.5)	8.95(3.54)
Any trauma	220 (67.3)	46.27(15.61)

CTQ: Childhood Trauma Questionnaire; SD: Standard deviation

Statistical analysis

Using a prevalence from a previous Nigerian study, we determined the sample size with the Cochran formula for a known prevalence.[30,31] This gave a minimum sample size of 311 respondents. After adjusting for a non-response rate of 10%, the sample size came to 342. However, after recruitment, the final sample was 327 students with a response rate of 95.6%.

Statistical analysis was conducted using IBM SPSS version 21. Basic sociodemographic information and prevalence of childhood trauma types were presented using descriptive statistics. Shapiro-Wilk test showed that the childhood trauma score was not normally distributed. The non-parametric Spearman's correlation was therefore used to determine the relationship between various types of trauma. Binary logistic regression was done separately for each type of childhood trauma to assess their role as predictors of depression or suicidality. The effect of having multiple trauma on depression or suicidality was also assessed using binary logistic regression. Age and gender were controlled in all regression analyses (not displayed in the tables for simplicity of presentation). A probability value of less than 0.05 was considered statistically significant. Point and interval estimates were expressed as adjusted odds ratios and 95% confidence intervals, respectively.

Results

The respondents' mean (± standard deviation, SD) age was 15.00 (1.40), and the range was 11-19 years. The gender distribution was roughly equal, with 175 (53.5%) males and 152 (46.5) females. One hundred and eighty=six (56.9%) students were from private schools.

Table 1 shows the prevalence of each subtype of childhood trauma. Sexual abuse was the most prevalent type, followed by physical neglect and physical abuse. The least reported was emotional abuse.

Table 2 shows the correlation between trauma types. Physical and emotional neglect had the strongest correlation, closely followed by the association between physical and emotional abuse. Next was sexual abuse which had moderate correlations with physical and sexual abuse.

Table 2. Relationship between types of childhood trauma

Variable	*1*	*2*	*3*	*4*	*5*
1. Emotional Abuse	1				
2. Physical Abuse	.63**	1			
3. Sexual Abuse	.50**	.51**	1		
4. Emotional Neglect	.22**	.33**	.22**	1	
5. Physical Neglect	.25**	.32**	.25**	.64**	1

$^{*}p < 0.05$; $^{**}p < 0.01$

Table 4. Multiples of abuse types as predictors of depression and any suicidal ideation/behaviour

Variables	B	SE	Wald	p	Exp(B)	95% CI
Depression						
Types of abuse experienced						
0					ref	
1	.84	.61	1.89	>0.05	2.32	.70-7.72
2	1.77	.55	10.09	**<0.05**	5.91	1.97-17.71
3	1.95	.59	11.00	**<0.05**	7.07	2.22-22.50
≥4	2.39	.56	17.87	**<0.05**	10.95	3.61-33.21
Any self-harming behaviour						
Types of abuse experienced						
0					ref	
1	.95	.42	5.24	**<0.05**	2.62	1.15-5.98
2	1.08	.42	6.38	**<0.05**	2.95	1.27-6.84
3	1.45	.45	10.09	**<0.05**	4.27	1.74-10.47
≥4	1.62	.44	13.32	**<0.05**	5.05	2.11-12.05

B: Beta coefficient; SE: Standard error; Wald: Wald chi-square statistic; p: probability value; Exp B: Exponent of Beta coefficient; CI: Confidence interval

Table 3 shows binary logistic regression results to determine childhood trauma as a predictor of depression and suicidal behaviour. Each type of childhood trauma had 2-3 times the odds for moderate to severe depression. Furthermore, those who reported any trauma were about five times more likely to have moderate to severe depression. Childhood trauma also emerged as a predictor of suicidality. Specifically, emotional abuse predicted deliberate self-harm, physical abuse predicted planning suicide and intentional self-harm, while sexual abuse predicted the consideration of suicide, suicide attempts, and intentional self-harm. In addition, emotional neglect predicted planning suicide and suicide attempts, while physical neglect predicted suicide attempts. Physical abuse, sexual abuse, and emotional neglect predicted having at least one self-harming behaviour. Furthermore, experiencing any abuse type significantly predicted having at least one suicide behaviour.

Logistic regression analysis was also done to determine the effects of experiencing multiple abuse types on depression or suicidality (Table 4). The likelihood of having depression or suicidality heightened as the number of abuse types experienced increased, suggesting a dose-response relationship.

Discussion

Findings from this study revealed that sexual abuse was the most prevalent type in our study sample. In addition, childhood trauma significantly predicted depression and suicidality. All kinds of childhood trauma were intercorrelated,

Table 3. Childhood trauma as predictors of depression and suicidality

Variables	B	SE	Wald	p	Exp(B)	95% CI
Depression						
Emotional abuse	.75	.33	5.00	**<0.05**	2.12	1.09-4.12
Physical abuse	1.43	.31	20.54	**<0.05**	4.20	2.26-7.83
Sexual abuse	1.06	.32	11.15	**<0.05**	2.90	1.55-5.43
Emotional neglect	1.09	.32	9.85	**<0.05**	2.77	1.46-5.23
Physical neglect	.66	.32	4.37	**<0.05**	1.95	1.04-3.65
Any abuse	1.71	.49	11.91	**<0.05**	5.54	2.09-14.66
Considered suicide						
Emotional abuse	.30	.38	.60	>0.05	1.35	.63-2.88
Physical abuse	.31	.34	.79	>0.05	1.36	.68-2.70
Sexual abuse	.74	.34	4.74	**<0.05**	2.09	1.07-4.07
Emotional neglect	.54	.35	2.37	>0.05	1.72	.86-3.45
Physical neglect	.56	.34	2.62	>0.05	1.75	.88-3.44
Planned suicide						
Emotional abuse	.79	.43	3.30	>0.05	2.21	.94-5.24
Physical abuse	1.19	.42	7.93	**<0.05**	3.30	1.14-7.61
Sexual abuse	.41	.42	.94	>0.05	1.51	.65-3.46
Emotional neglect	1.02	.43	5.50	**<0.05**	2.78	1.18-6.55
Physical neglect	.78	.44	3.18	>0.05	2.19	.92-5.22
Attempted suicide						
Emotional abuse	.35	.55	.40	>0.05	.75	.55-1.02
Physical abuse	.89	.48	3.38	>0.05	2.45	.94-6.37
Sexual abuse	1.07	.51	4.26	**<0.05**	2.91	1.05-8.04
Emotional neglect	1.45	.51	8.11	**<0.05**	4.30	1.57-11.74
Physical neglect	1.80	.59	9.19	**<0.05**	6.05	1.89-19.36
DSH						
Emotional abuse	.85	.35	5.70	**<0.05**	2.33	1.16-4.69
Physical abuse	.88	.33	6.85	**<0.05**	2.42	1.25-4.71
Sexual abuse	1.08	.34	9.80	**<0.05**	2.96	1.50-5.84
Emotional neglect	.51	.36	2.05	>0.05	1.67	.82-3.39
Physical neglect	.04	.35	.01	>0.05	1.04	.52-2.09
Any suicidal behaviour						
Emotional abuse	.44	.30	2.13	>0.05	1.56	.85-2.85
Physical abuse	.73	.27	7.09	**<0.05**	2.08	1.21-3.56
Sexual abuse	1.09	.27	15.9	**<0.05**	2.98	1.74-5.09
Emotional neglect	.67	.28	5.59	**<0.05**	1.97	1.12-3.45
Physical neglect	.42	.27	2.37	>0.05	1.53	.89-2.63
Any abuse	1.23	.35	12.33	**<0.05**	3.42	1.72-6.81

B: Beta coefficient; SE: Standard error; Wald: Wald chi-square statistic; p: probability value; Exp B: Exponent of Beta coefficient; CI: Confidence interval; DSH: Deliberate self-harm

and experiencing multiple types of abuse was associated with an increased likelihood for depression or suicidality. Previous studies from other countries in sub-Saharan Africa have documented the association between the various types of childhood trauma and depression or suicidality among adolescents and young adults.[32–35] Our findings extend prior work and fill the research gap in Nigerian adolescents.

The high rate of sexual abuse compared to other types is a cause for concern. Compared to other Nigerian studies, Manyike et al. reported a prevalence of 40%, similar to our finding, while Chinawa et al. found a rate of 10.2%.[36,37] These studies, however, did not use the childhood trauma scale. Considering that sexual abuse generally tends to be underreported, the actual figures might be higher.[38]

Our results are consistent with reports from sub-Saharan Africa, which found that adverse childhood experiences significantly predicted depression.[39,40] Mall et al. noted that emotional abuse and neglect predicted depression among South African students and found a dose-response relationship between childhood trauma and depression.[39] Amone-P'olak et al., in a study among Botswanan students, found that the more childhood trauma events a student experienced, the more severe their depressive symptoms were.[40] Both studies were conducted among university students older than 18 years. The cumulative effect of multiple types of abuse on depression risk was also described in a study among adolescents in post-conflict Burundi.[41] Together, these findings support the cumulative risk hypothesis, which posits that multiple exposures to risk factors increases worsens health outcome in an additive manner.[41,42]

A South African study found that the total childhood adversity score predicted subsequent suicide attempts, suicide planning, and suicide ideation after one year, similar to our report.[35] However, the effect of child adversity subtypes was not assessed. Consistent with our results, a Brazilian study found that sexual abuse and neglect correlated with lifetime suicide attempts.[43] In contrast, physical abuse also predicted suicide attempts. Furthermore, only physical abuse predicted suicide planning, contrary to our results which found that emotional neglect in addition to physical abuse were predictors. Physical and sexual abuse predicted suicidal ideation in their report, whereas only sexual abuse was a predictor in our study. Their findings also supported the increasing effect of multiple childhood trauma on suicide. Overall, both studies support an association between childhood trauma and suicidal behaviour. Cultural or other socio-economic differences may explain differing results in subtype analysis.

The intercorrelation between all types of childhood trauma was consistent with previous studies, similarly finding that the correlation between physical and emotional abuse was among the strongest.[44,45] Emotional and physical neglect were also more strongly intercorrelated than other subtypes.[44,45] The various types of child abuse rarely occur in isolation.[46] These findings highlight the need to explore other types of child maltreatment when any subtype is present.

Conclusion, recommendations and limitations

Childhood trauma frequently occurs in the population, with more than a third of students in this cohort experiencing at least one type of trauma. Also, results illustrate that childhood trauma is significantly associated with depression and suicidality among adolescents in Calabar. These findings are important in the Nigerian context, where harsh disciplinary methods are used on children, with implications for research, policy, and practice. They underscore the need for multifaceted cross-system intervention to protect children from exposure to

abuse and neglect. Efforts to reach evidence-based consensus on the effects of child abuse are needed, which should inform modification and country-wide adoption of the law.

This study forms the foundation for future research to include a larger, more diverse sample size to investigate the long-term effects of childhood trauma and examine the role modifiers such as socio-economic background have on depression and suicidality. For clinicians, our results highlight the importance of identifying at-risk children and families and instituting measures to reduce the prevalence of depression and suicidality.

The results should be interpreted with caution bearing in mind a few limitations. Childhood trauma was assessed by self-report, which is prone to recall bias. Sexual abuse is a complex, deeply personal subject and might have been underreported. The sample comprised secondary school students in an urban area, limiting generalizability. Finally, we cannot establish causal relationships due to study design constraints. Despite these limitations, our study is among the few in sub-Saharan Africa exploring the effect of childhood trauma on depression and suicidality.

Ethical considerations

The Research Ethics Board of the Federal Neuropsychiatric Hospital, Calabar, approved this study (Ref no: FNPH/HREC/01/05).

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