

ADVERSE CHILDHOOD EXPERIENCES AND SEXUAL RISK BEHAVIOUR IN STUDENTS OF A TERTIARY INSTITUTION IN SOUTHWEST NIGERIA

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ABSTRACT

Introduction: Adverse Childhood Experiences (ACE) are negative occurrences in childhood, including abuse (emotional, physical, and sexual abuse), neglect (emotional and physical) or household dysfunctions, which are linked to compromised health and well-being in adulthood. The consequences are wide and diverse including Sexual Risk Behaviour (SRB).

Aim: We embarked on this study to identify types and prevalence of ACE as well as the association between ACE and the adoption of SRB among the students of a tertiary institution in Oyo State, Nigeria.

Subjects and Methods: A descriptive cross-sectional study was conducted amongst students of Oyo State College of Agriculture and Technology. A questionnaire was used to obtain information on sociodemographic characteristics, ACE and SRB. Descriptive and inferential statistics were used to analyse the data as applicable.

Results: A total of 395 respondents participated in the study. The mean age of respondents was 21.06 ± 3.13 years. Emotional abuse and physical neglect had the highest prevalence of 65.6% and 44.3% respectively. Unprotected sex was the most prevalent SRB (19.5%). Majority (91.4%) of the respondents had experienced at least one ACE. There was a graded dose response between ACE and SRB. Participants with sexual risk behaviour were twice likely to have been exposed to household dysfunction (OR: 2.2 CI 1.3 - 3.7).

Conclusion: ACE and its subsequent effect on developing SRB have been demonstrated; its prevention and early identification should be an integral part of public health programs.

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INTRODUCTION

Adverse Childhood Experiences (ACE) are negative occurrences in childhood, including abuse, neglect or household dysfunctions, which are linked to compromised health and well-being in adulthood.¹ The burden and effect of ACE have been well established in developed countries.² The effects are lasting and wide, ranging from cardiovascular disorders, metabolic abnormalities, and health risk behaviour to cancers and mental illness.^{3,4,5} Exposure to ACE has been associated with alterations in the development of children's brains as well as changes in their immunological and hormonal systems.⁶ This developmental alteration explains the increased risk for health harming and anti-social behaviours in those with greater exposure to ACE.⁶ Childhood adversity is therefore termed a hidden health crisis with far reaching consequences.⁷

Childhood abuse which is an ACE has three components: emotional, physical, and sexual abuse. Emotional abuse is defined as injury to the

psychological capacity or emotional stability of the child as evidenced by an observable or substantial change in behaviour, emotional response, or cognition.⁸ The symptoms of emotional damage result from harm to a child's psychological or intellectual functioning and it includes any of the following exhibited to a severe degree: anxiety, depression, withdrawal, outward aggressive behaviour or substantial change in behaviour.⁹ Physical abuse is defined as physical injury inflicted on a child by other than accidental means.¹⁰ It varies from severe or frequent bruising to more serious injuries.¹¹ Sexual abuse is defined as sexual exploitation of a child, permitting or encouraging a child to engage in prostitution or in the production of child pornography.⁸

Childhood neglect has two components: emotional and physical neglect. Neglect is frequently defined as the failure of a parent or other person with responsibility for the child to provide needed food, clothing, shelter, medical care, or supervision to the

degree that the child's health, safety, and well-being are threatened with harm.¹

The third category of ACE is the household dysfunction which includes growing up with domestic violence, parental marital discord, and substance abuse, mentally ill, or criminal household members.^{12,13} Of all the stated components of ACE, the physical abuse component of ACE may not be easily distinguishable from corporal punishment.¹⁴

Corporal punishment is a common practise in homes and schools in low income countries as a measure of instilling discipline.¹⁴ Corporal punishment is defined as any punishment in which physical force is used and intended to cause some degree of pain or discomfort, however light.¹⁵ Corporal punishment is legally permitted in Nigeria with a caveat on threshold of severity.¹³ However, it is common culturally albeit with differences across ethnic groups. It has however been shown to increase the risk for more forms of abuse.¹⁶ It has been described as a form of violence against children, has also been shown to be empirically similar to physical and emotional abuse and argued to be considered as an ACE.¹² ACE are said to occur across race, economic classes and geographic regions with a higher prevalence amongst those living in poverty.¹⁷ With a high prevalence of corporal punishment in Nigeria coupled with 70% of Nigerians living below the poverty line, there is a need to explore the occurrence and effects of ACE in the country.

One of the documented consequences of ACE is SRB with previous studies showing a positive linear relationship between ACE and SRB.¹⁸ A fifth of the Nigerian population are between the age of 15 and 24years.¹⁸ Globally, one person out of every five is between the age of 15 – 24 years.¹⁹ This age group has the highest prevalence of SRB in most societies.⁹ SRB is commonly defined as behaviour that increases one's risk of contracting Sexually Transmitted Infections (STI(s)) and experiencing unintended pregnancies. They include having sex at an early age, having multiple sexual partners, sex while under the influence of alcohol or drugs, and unprotected sexual intercourse.⁹ Consequences of SRB include unwanted pregnancy, unsafe abortion and STI(s). These consequences pose a huge demand on the weak health care system.

Research has shown a clear connection across the life course with paediatric conditions such as attention deficit and emotional dysregulation being linked to early abuse or neglect.² With the growing evidence of ACE and its association with diverse health related events, this life course perspective provides the

opportunity to examine life no longer as disconnected stages but as an integrated spectrum across time.² Such evidence is limited in developing countries; which may be attributed to poor reporting and documentation. We embarked on this study to identify the types and prevalence of ACE as well as the association between ACE and the adoption of SRB among the students of a tertiary institution in Oyo State, Nigeria.

SUBJECTS AND METHODS

The study was conducted in Igboora, the headquarters of Ibarapa Central Local Government Area of Oyo state. Oyo state is one of the 36 states of the Federal Republic of Nigeria. Oyo State College of Agriculture and Technology is the only tertiary institution in Igboora with 16 departments and 1392 students. The study was a descriptive cross-sectional study. Participants were selected using a two-stage sampling technique. The first stage was the selection of 9 out of 16 departments using a simple random technique. Stratified random sampling was adopted at the second stage by stratifying each previously selected department based on year of study. All consenting students from each stratum were recruited for the study. The estimated minimum sample size using the Leslie-Kish formula was 352 using a prior estimate of the most prevalent ACE (physical abuse) which was 70% at 95% confidence interval, 5% margin of error and a non-response rate of 10%. Students aged 15years and above were eligible while students from other institutions on exchange program or visitation were excluded.

A validated self-administered questionnaire was used. The questionnaire had three sections A – C. Section A had questions on sociodemographic characteristics, section B on ACE and section C on SRB. The ACE questions were from the ACE questionnaire, a ten-item questionnaire developed by the Centers for Disease Control and Prevention, USA and supported by the World Health Organization (20). The ACE score measures cumulative exposure to ACE by counting each exposure as one point without accounting for frequency or severity of any given adverse experience. ACE score was calculated with scores ranging from 0 – 10. The ACE questionnaire has 10 questions graded as 1 for each positive response. Hence the highest possible score was 10 and lowest possible score was 0. SRB was grouped into the following domains: early sexual debut, multiple sexual partnering, sex while under the influence of alcohol or drugs, and unprotected sexual intercourse. We also asked questions on two consequences of SRB: unsafe abortion and STI(s).

Analysis was done using the Statistical Package for the Social Sciences (SPSS) version 16 software. Descriptive statistics were used to summarize all the data collected while Fisher's exact or Chi-square test was used to explore associations between variables of interest as applicable. Logistic regression analysis was used to identify possible risk factors of SRB. The level of significance was set at 0.05. Estimates of odds ratio and confidence intervals were reported.

Compliance with Ethical Standards

Institutional ethical review clearance was provided by the Ibarapa programme of the College of Medicine of the University of Ibadan. Permission was sought from the school authorities and informed consent was obtained from all individual participants included in the study. The objectives and data collection procedure were explained to the participants. They were ensured that their responses would be kept with utmost confidentiality. Participant's privacy and voluntariness were also emphasized.

RESULTS

Socio-demographic Data of Respondents

A total of 395 respondents agreed to participate in the survey. The mean age of respondents was 21.06 ± 3.13 years, with majority being females (53.7%), single (96.2%) and first year students (52.9%). (Table 1)

Table 1: Sociodemographic characteristics

Sociodemographic Characteristics	N=395 (%)
Age Groups (years)	
15-19	130 (32.9)
20-24	222 (56.2)
>=25	43 (10.9)
Sex	
Male	183 (46.3)
Female	212 (53.7)
Marital Status	
Single	380 (96.2)
Married	15 (3.8)
Year Of Study	
OND 1	209 (52.9)
OND 2	132 (33.4)
HND 1	34 (8.6)
HND 2	20 (5.1)

• OND: Ordinary National Diploma

• HND: Higher National Diploma

ACE and SRB

Table 2 displays the prevalence of each ACE and SRB category. Among the various types of childhood abuse, emotional abuse had the highest prevalence of 65.6% and amongst the types of neglect, physical neglect had the highest prevalence of 44.3%. The least prevalent of the 7 categories of ACE was medical neglect (14.7%).

Unprotected sex was the most prevalent SRB (19.5%). (Table 2)

Table 2: Types and prevalence of adverse childhood experience and sexual risk behaviour

Type	Prevalence
Adverse Childhood Experience	
Abuse	
Physical Abuse	49.4%
Sexual Abuse	46.3%
Emotional Abuse	65.6%
Neglect	
Physical Neglect	44.3%
Emotional Neglect	35.4%
Medical Neglect	14.7%
Household Dysfunction	
Household Dysfunction	33.7%
Sexual Risk Behaviour	
Age at first consensual intercourse less than 15 years	1.3%
Multiple short term sexual encounters (more than 10)	2.5%
Exchange of sex for money or gifts	4.3%
Unprotected sexual intercourse	19.5%
Having sex under the influence of alcohol or drugs	4.3%
Consequences of Sexual Risk Behaviour	
Unsafe abortion	0.8%
History of sexually transmitted disease	2.45

ACE Score

The ACE score range from 0 – 9 with 8.6% having an ACE score of 0 and 0.5% having an ACE score of 9. The modal ACE score was 3 with frequency of 24.6%. Majority (91.4%) of the respondents had experienced at least one ACE. (Table 3)

Table 3: Adverse childhood experience score

ACE Score	Frequency	Percentage (%)
0	34	8.6
1	65	16.5
2	73	18.5
3	97	24.6
4	50	12.7
5	45	11.4
6	21	5.3
7	8	2.0
8	0	0
9	2	0.5
10	0	0

Gender Differences in ACE AND SRB

Table 4 displays gender differences on the reported ACE and SRB. The prevalence of ACE is similar across genders except for sexual abuse and household dysfunction which revealed a significant difference with a higher prevalence of both in males. The SRB categories were significantly different across genders

with age at first sexual intercourse, history of multiple sexual encounters, unprotected sexual intercourse and having sex under the influence of alcohol or drugs being significantly different with higher prevalence in males. (Table 4)

There is a high correlation between all forms of abuse and all forms of neglect except for medical neglect. Household dysfunction also displays similar high co-occurrence with all types of abuse and neglect except medical neglect. (Table 5).

Table 4: Gender differences in ACE and SRB

ACE Groups	Male. N(%)	Female. N(%)	Total. N(%)	p-value
Emotional Abuse	120(46.3)	139(53.7)	259(100.0)	0.999
Physical Abuse	91(46.7)	104(53.3)	195(100.0)	0.894
Sexual Abuse	104(56.8)	79(43.2)	183(100.0)	0.000*
Emotional Neglect	69(49.3)	71(50.7)	140(35.4)	0.383
Physical Neglect	87(49.7)	88(50.3)	175(44.3)	0.229
Medical Neglect	26(44.8)	32(55.2)	58(14.7)	0.804
Household Dysfunction	71(53.4)	62(46.6)	133(33.7)	0.045*
SRB Categories				
Age at first sexual intercourse less than 15 years	13(100.0)	0(0.0)	13(100.0)	0.001*
Multiple Short Term Sexual Encounters ≥ 5 partners	10(100.0)	0(0.0)	10 (100.0)	0.005*
Exchange of sex for money or gifts	13(76.5)	4(23.5)	17(100.0)	0.124
Unprotected Sexual Intercourse	51(66.2)	26(33.8)	77(100.0)	0.045*
History of Sexually Transmitted Disease	4(44.4)	5(55.6)	9(100.0)	0.493
Having Sex under Influence	14(82.4)	3(17.6)	17(100.0)	0.038*

$N = 395$ * p -value < 0.05 (i.e. Significant). (Dependent variable: Sexual Risk Behaviour)
 ** p -value is obtained from Fisher's exact

Relationship between Categories of ACE

Table 5 shows interrelationship among categories of ACE. Almost half of those who experienced all forms of abuse also experienced emotional and physical neglect. The proportion amongst this group that experienced medical neglect is however about 20%. However, among those that experienced all forms of neglect, more than half experienced all forms of abuse.

Relationship between ACE and SRB

Figure 1 reveals the relationship between ACE and SRB.

This figure displays a graded dose response between ACE and SRB. It shows higher frequencies of SRB among respondents with high ACE. Respondents with no ACE and those with low ACE (ACE score 1 and

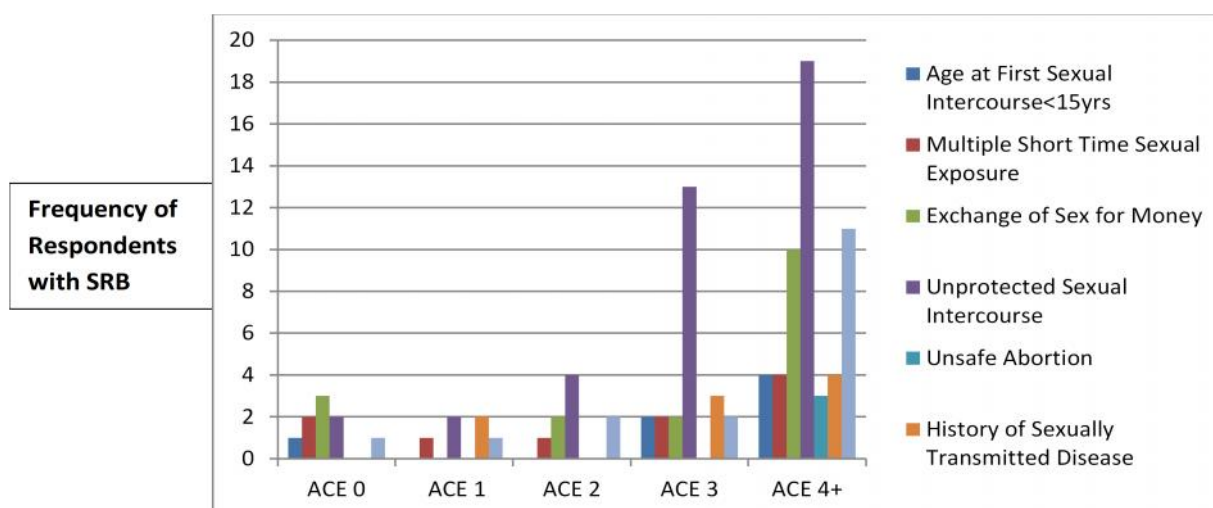


Fig. 1: Relationship between ACE and SRB

2) were shown to have fewer frequencies of SRB compared to respondents with high ACE (ACE score 3 and above). (Figure 1)

ACE and SRB

Table 6 reveals the various categories of ACE which serves as risk factors for SRB. However, the only significant risk factor was seen with the household dysfunction category. Participants with household dysfunction were twice likely to have been exposed to ACE (OR 2.204). (Table 6)

respondents had experienced at least one childhood adversity. This is higher than what has been observed in several other studies where the prevalence has been shown to range from 5% to 75% in different settings.^{6,2,21,22,23-26} The high prevalence noted in this study was however comparable to the study by Ige *et al.* in Nigeria with at least one form of adverse experience reported by all respondents²⁷ and two studies conducted in Southwest and Southeast Nigeria with 87% reported ACE.^{28,29} The high prevalence of corporal punishment in Nigeria may be one of the

Table 5: Relationship between categories of adverse childhood exposures

First category of childhood exposure.	Percent [n(%)] exposed to another category.							
	Sample size	Emotional Abuse	Physical Abuse	Sexual Abuse	Emotional Neglect	Physical Neglect	Medical Neglect	Household Dysfunction
Emotional Abuse	259	-	155(59.8)	139(53.7)	108(41.7)	127(49.0)	46(17.8)	103(39.8)
Physical Abuse	195	*155(79.5)	-	106(54.4)	74(37.9)	94(48.2)	36(18.5)	76(39.0)
Sexual Abuse	183	139(76.0)	107(58.5)	-	71(38.8)	94(51.4)	38(20.8)	77(42.1)
Emotional Neglect	140	108(77.1)	74(52.9)	71(50.7)	-	97(69.3)	35(25.0)	57(40.7)
Physical Neglect	175	127(72.6)	94(53.7)	94(53.7)	97(55.4)	-	42(24.0)	82(46.9)
Medical Neglect	58	46(79.3)	36(62.1)	38(65.5)	35(60.3)	42(72.4)	-	28(48.3)
Household Dysfunction	133	103(77.4)	76(57.1)	77(57.9)	57(42.9)	82(61.7)	28(21.1)	-

Table 6: Adverse childhood experiences and sexual risk behaviours

Variables	Odds Ratio	95% Confidence Interval	p-value
Emotional Abuse			
Yes	1.600	0.915 to 2.799	0.099
No	1.000		
Physical Abuse			
Yes	1.340	0.811 to 2.216	0.254
No	1.000		
Sexual Abuse			
Yes	1.559	0.943 to 2.579	0.084
No	1.000		
Emotional Neglect			
Yes	1.239	0.741 to 2.073	0.414
No	1.000		
Physical Neglect			
Yes	1.617	0.978 to 2.674	0.061
No	1.000		
Medical Neglect			
Yes	1.256	0.640 to 2.468	0.508
No	1.000		
Household Dysfunction			
Yes	2.204	1.324 to 3.668	0.002*
No	1.000		

N= 395 * p-value <0.05 (i.e. Significant). No=1.000 (Reference value/category)

DISCUSSION

This was a survey of 395 students of a tertiary institution aged 15 years and above describing their ACE and its association with SRB. Majority (91.45) of

factors responsible for the observed high prevalence of ACE.

This study showed emotional abuse, physical abuse and emotional neglect as the most frequently reported types of ACE. This is similar to other studies.^{5,15,24,26} Emotional abuse is stated as an expected event in any form of ACE because psychological violence is a component of all forms of abuse. The impact of poverty can sometimes be interpreted as neglect hence a thin line exists between poverty and neglect.⁵ The high prevalence of neglect may therefore be a consequence of the high poverty level in Nigeria.

As with many studies^{30,31}, gender differences on the prevalence of ACE was noted in this study. Most studies have reported higher prevalence in females. A study conducted in a rural community revealed gender difference with female respondents reporting more ACE with a significant difference in the physical abuse and sexual abuse components.¹⁸ Another study revealed females to be 50% more likely than men to have experienced 5 or more categories of ACE.³² This was reported to be a possible explanation for women's natural susceptibility to some ill-defined health problems.³³ This study also reported higher prevalence in females for most of the ACE groups however there was a higher prevalence of sexual abuse and household dysfunction components among males. A similar study conducted in Nigeria revealed a higher proportion of males reporting sexual abuse.²⁷ A community survey in Albania revealed higher ACE prevalence in males which was related to their traditional and historical customs where parents pay special attention to female children despite gender preference for male children.²²

The clustering effect of ACE as demonstrated by other studies^{2,15,18,19,21,22,27,32,33} and as shown in this study testifies to the fact that victims of adverse events are more susceptible to other types of childhood adversities. This reveals that abuse often takes place within a broader context of adversity.¹⁷ This can therefore serve as a guide in identifying and treating maltreated children. ACE do not occur independently hence when one is identified, the presence of others must be thoroughly investigated.

Respondents with ACE scores of 4 or more had a higher prevalence for risky sexual behaviour demonstrating a dose response relationship, this graded response was also seen in similar studies.^{17,21} This graded relationship has been attributed to heightened effects of stress caused by a multiplication effect when trauma continues whether by repetition of similar stresses or accumulation of disparate ones.³⁴

We acknowledge the existence of limitations in this study. Firstly, the ACE assessment tool used fails to quantify the ACE and ranks single and multiple

exposures within the same category. It also fails to differentiate normal stress in life that is sometimes necessary for development.³⁴ Secondly, recall bias is also a potential limitation due to possible difficulty in accurately recalling childhood events. However, ACE and its subsequent effect on developing SRB have been demonstrated. Its prevention and early identification should be an integral part of public health programs.

CONCLUSION

There was a high prevalence of ACE among this study group with the most prevalent forms being emotional abuse and physical neglect. A graded dose response was found between ACE and SRB and those with household dysfunction were more likely to have been exposed to ACE. The far-reaching effects of ACE on adult health and functioning emphasizes the urgent need for its prevention and mitigation where it has already occurred. This may be achieved by promoting safe, stable relationships and nurturing environments for children to live and grow as well as policy interventions to reduce overall health inequities.

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