



Deliberate self-harm in a sample of sub-Saharan African youths: Adverse childhood experiences, self-esteem, and gender as factors

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Abstract

This study investigated the roles of adverse childhood experiences (ACEs), self-esteem, and gender on deliberate self-harm in a sample of Sub-Saharan African youths. Six hundred (600) students drawn from the University of Nigeria Nsukka, participated in the study. They comprised 300 males and 300 females with the age range of 18-26 years (Mean age = 21.84, SD = 1.18years). Three instruments were employed for data collection: Adverse Childhood Experiences International Questionnaire (ACEs-IQ), Rosenberg Self Esteem Scale (RSES), and the Self Harm Inventory (SHI). Hierarchical multiple regression was employed for data analysis. Results showed that ACEs predicted increased deliberate self-harm ($\beta = -.02$, $t(420) = -5.27$, $p < .001$). Self-esteem negatively predicted deliberate self-harm ($\beta = -.39$, $t(420) = -8.85$), while gender did not predict deliberate self-harm ($\beta = -.02$, $t(420) = -.49$, $p < .001$). The findings suggest that the general public especially the parents and caregivers should be educated and sensitized on the negative impact of ACEs to help reduce and alleviate the occurrence of deliberate self-harm among youths. Strategies to inculcate a healthy sense of self among youths are also recommended.

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Introduction

Globally, deliberate self-harm (DSH) is largely becoming a threatening issue within the school settings and higher institutions of learning are no exception. Deliberate self-harm (DSH) is the intentional, direct destruction of body tissue (most commonly by cutting, burning, scratching, self-hitting, self-biting, head banging, piercing the skin with sharp objects, and inserting objects under the skin) without conscious suicidal intent but resulting in injury severe enough for tissue damage to occur (Wilson, & Ougrin, 2021). Most frequently, the arms, legs, and front of the torso are the targets of self-injury, but any area of the body may be used for DSH. People who self-injure may use more than one method to harm themselves.

DSH is different from suicide which involves intent to die, however, it is potentially life-threatening, and is more common among nonclinical populations of adolescents. This type of self-injury is a harmful way to cope with emotional pain, intense anger, and frustration. Although deliberate self-harm may bring a momentary sense of calm and tranquillity, it is usually followed by guilt and return of painful emotions. Houston et al., (2001) noted that the study of DSH is important because clinically untreated deliberate self-harm behaviors may precede suicide. In the same way, suicidal ideation, particularly in adolescence, and its relationship to psychiatric morbidity and completed suicide continue to be a subject of concern.

However there are two basic groups of self-injuring individuals and they are individuals who engage in deliberate self-harm for a specific period and those who engage in it repetitively overtimes (Kaess et.al, 2013). Freeman et.al., (2010) noted that the reoccurrence and frequency of deliberate self-harm may be an important characteristic for the classification of deliberate self-harm in the Diagnostic and Statistical Manual for Mental Disorder and it includes mild, moderate, and severe deliberate self-harm. People, who fall in the mild category, have a low frequency of occurrence of this behaviour and it's not always severe. Individuals who fall into the moderate category of this behaviour, tend to be more frequent in harming themselves and most times require medical attention especially for treatment due to the level of harm; and those at the severity level suffer frequent occurrence and tend to suffer impairments.

Currently, there seems to be an increase in research to discover why people who know these harmful behaviours would still engage in it. The thoughts of engaging in self-injurious behaviour mostly occur when the individuals are alone and experiencing negative thoughts (e.g, remembering past events, feeling of anger, self-hatred, and numbness) mostly in response to stressful events (Nock, & Prinstein, 2004).

One of the fatally known negative consequences of DSH is the physical harm that comes with it. Surprisingly individuals that engage in this behaviour, report that they feel little or no pain during the behaviour (Favazza 1996, Nock et.al, 2004). Possible explanations for this are: decrease in pain sensitivity, habituation to physical pain, the release of endorphins during self-injuries, or the belief that one deserves to be injured (Nock et al., 2004; Nock 2010). Other negative consequences of this behaviour include feelings of anger, guilt, and shame of having engaged in this behaviour (Klonsky, 2009). In recent years there have been speculations as to what causes DSH. The most popular is the demonic assumption; it is believed that individuals living with this type of abnormality are under demonic manipulation (Favazza, 1996). Hence the treatment and management of this particular issue is achieved using spiritual rituals such as exorcism. Scholars such as Maciejewski, et al., (2014); Maciejewski, et al., (2017); and Adhya et.al (2018) have revealed that DSH can be caused by some biological factors such as genetics, the enlargement of Amygdala and increased testosterone and dopamine. Based on literature search, the present researchers noted that work on deliberate self-harm was conducted mostly overseas and limited attention has been given to this issue in Nigeria and Africa overall.

The aim of the present study is to investigate the predictive role of adverse childhood experience, self-esteem, and gender on deliberate self-harm among youths. Previous researchers of deliberate self-harm (e.g,

Doyle et al., 2015; Hawton et al., 2002) focused their understanding of it on children and school-going adolescents. There is a need to extend this study to youths or young adults to see if the triggers are the same. Understanding these triggers will help in developing interventions that can as well help to reduce DSH to its barest minimum.

Literature Review

ACEs and Deliberate self-harm

The theoretical framework of the present study is the Social learning Theory propounded by Bandura (1973). The tenet of this theory is that individuals learn simply by observing the behavior of others (models). They then evaluate the effect of those behaviors by observing the positive and negative consequences that follow; thus this theory encapsulates two differing rationales to account for deliberate self-harm, regardless of whether the nature of the behavior is stereotyped or impulsive. These include (a) *the positive reinforcement hypothesis* whereby individuals engage in DSH to gain access to a preferred goal state, and (b) *the negative reinforcement hypothesis*, whereby self-injurious acts are engaged to escape an aversive condition (Minshawi, et.al, 2015).

Drawing from the perspective of social learning theory, a youth may engage in DSH, such as stereotyped self-hitting or impulsive skin cutting, either to gain access to something that they experience as pleasant, such as social attention, popularity, and firm, which is contingent on performance of the self-injurious act (positive reinforcement) or to escape from something that they experience as unpleasant, such as adverse childhood experiences or aversive stimuli, low self-esteem, social demands and suspension of which is contingent on performance of the self-injurious act (negative reinforcement). In either case, when DSH results in access to a pleasant condition or facilitates escape from an unpleasant circumstance, the result is a strengthening (reinforcement) of the self-injurious behaviour (Singtakaew, & Chaimongkol, 2021). Self-harm in young people has been shown to have an impact on family relationships, wellbeing, and mental health (Beckman et al. 2016; Mars et al. 2014; Robberts et al. 2020).

A lot of factors have been recorded in the literature as the risk factors of DSH, and they are parental psychopathology (Fergusson et.al, 2003), living in broken homes (Brent et.al, 2013), dysfunctional behaviour at school (Gould et.al, 1996), and dysfunctional relationship (Bjärehed, & Lundh, 2008). In a recent systematic review of the risk factors of DSH, factors such as mood disorder, borderline, and other personality disorders, the severity of symptoms of depression and hopelessness, and suicidal ideation have been reported as key risk factors (Witt et al, 2018). In the present study, Adverse Childhood Experiences (ACEs) is one of the variables that were studied. ACEs refers to some of the most intensive and frequently occurring sources of stress that a child may suffer early in life, such experiences include violence between parents and caregivers, household dysfunction such as alcohol, substance abuse, and violence (Steptoe et.al, 2019). Deducing from the above definition, ACEs is seen as potentially traumatic events that can have negative lasting effects on the health and wellbeing of children; and it includes maltreatment and abuse as well as living in an environment that is harmful to their development. Boullier and Blair (2018) asserted that there are ten incidents identified as adverse childhood experiences, and they include: physical abuse, sexual abuse, emotional abuse, verbal abuse, a household member with mental illness, household member with a substance abuse problem, household member who is incarcerated, witnessing domestic abuse, separation or divorce of parents and exposure to neighborhood violence. All these are toxic childhood events that affect the child's psychological and social wellbeing.

Adverse childhood experiences have long term damaging consequences such as psychiatric difficulties in children and adults, strong negative impacts on children and are associated with poorer health and behaviour outcomes (Bellis, et al., 2014), serious permanent damage to the developing brain, and also can alter the functioning of the immune system, thereby predisposing them to high risk of chronic illness and early death

(Boullier and Blair, 2018). These consequences are substantive. Studies (e.g, Murphy et al, 2016; Kong et.al, 2021) have shown that the negative impacts of ACEs can translate into negative adult outcomes such as reduction in the ability to respond, learn or figure things out which can result in problems in schools, increases difficulty in making and maintaining a social relationship, lowers tolerance for stress and stressful events, and can increase the risk of alcohol abuse, substance abuse, multiple sexual partners, suicidal ideations, and intimate partner violence causes serious impairment on the neuro-cognitive control and functioning; such as inhibitory control and working memory. Adverse childhood experiences are associated with detrimental hemodynamic and elevated circulating endothelin-1 in adolescents and young adults (Su et al., 2014). Adverse childhood experiences occur before age 18 and they are related to stress in early periods of life.

Scholars have shown that ACEs is implicated in DSH. For instance, Kaess, et.al., (2013) carried out a research study to investigate a specific relationship between a variety of ACEs and deliberate self-harm among undergraduates in a German University. A sample of 125 undergraduates with the age range of 13-26 participated in the study. Frequency, methods, and the predictive role of deliberate self-harm were assessed using the Functional Assessment of Self-Mutilation (FASM, Izadi-Mazidi et.al, 2019), ACEs were assessed using the Childhood Experiences of Care and Abuse Questionnaire (CECA.Q, Smith et.al, 2002). The 12-month prevalence of deliberate self-harm in this representative, clinical sample was 60.0%. The result revealed that engagement in self-harm was significantly related to ACEs with highest associations for maternal antipathy and neglect, while some adverse childhood experiences were not linked with frequent occurrence and intensity of self-harm, some Adverse childhood experiences were significantly related to the automatic functions of self-harm(e.g., affect regulation, anti-dissociative function or self-punishment) as well as to a peer identification function. In the same way, Baiden et.al (2017), examined the prevalence, and the effect of adverse childhood experiences on DSH among children and adolescents receiving treatment in mental health settings. Statistical data for this study were obtained from the Child and Youth Mental Health dataset. Information from a total of 2038 children and adolescents aged 8–18 years ($M=12.49$; $SD =2.88$, 61.1% males) was analyzed. Binary logistic regression was fitted to identify predictors of non-suicidal self-injury as a function of adverse childhood experiences, depression, and social support while simultaneously controlling for age, gender, type of patient, legal guardianship, marital status of parents/caregivers, history of foster family placement, and mental health diagnoses. Of the 2038 children and adolescents examined, 592 (29%) of this clinical sample engaged in non-suicidal self-injury. In the multivariate logistic regression model, children, and adolescents who were physically abused had 49% higher odds of engaging in self-harm and children and adolescents who were sexually abused had 60% higher odds of engaging in non-suicidal self-injury when compared to their non-abused counterparts.

A similar study was conducted by Cleare, et.al (2018) to know whether those who had a history of repeat self-harm reported more ACEs than those who had self-harmed for the first time. Their participants were inpatients of two hospitals in Glasgow (UK) ($n = 189$) those who are patients for the first-time ($n = 41$) and those who are repeated patients ($n = 148$) self-harm completed psychosocial measures. The result revealed that those presenting with repeat self-harm reported higher adverse childhood experiences and lower dependent attachment style. Cluver et.al (2015), conducted the first research studying child suicidal behavior in sub-Saharan Africa. A total number of 3,515 participants consisting of children and adolescents participated in the study. Data were obtained using a mini international neuropsychiatric interview (MINI) for children and adolescents suicidality scale, which measures self-harming desire, suicidal thoughts, ideation, planning, and attempts. While adverse childhood experiences are measured using verbal autopsy methods. Results showed that 3.2% of adolescents attempted suicide, 5.8% planning, and 7.2% reporting ideation and engaging in suicidal behaviour. After controlling for baseline suicidality and socio-demographics, a strong, graded relationship was shown between cumulative ACE and all suicide behaviors 1 year later. The above reviews showed that ACEs is a risk factor of deliberate self-harm. Thus, we

hypothesize that: H1: Adverse Childhood Experiences will positively predict Deliberate self-harm in a sample of sub-Saharan African youths

Self-esteem and Deliberate self-harm

Self-esteem refers to an individual's subjective evaluation of his or her worth as a person (Orth, & Robins, 2014). In the same way, Steiger et.al, (2014) refers to self-esteem as an individual's perception or subjective appraisal of one's self-worth, one's feelings of self-respect and confidence, and the extent to which the individual holds positive and negative views about self. Self-esteem is related to personal beliefs about skills and social relationships (Ahmed et.al, 2016), and it is seen as the overall self or specific aspects of self. It has nothing to do with public perception about an individual; neither does it deal with talents and acquisition of skills, and refers to the extent to which individuals value themselves (Twenge, & Campbell, 2001). It is a product of self-discovery. Self-esteem involves feelings of self-acceptance and self-respect, in contrast to the excessive self-regard and self-aggrandizement that characterizes narcissistic individuals (Baumeister, 2013; Orth et al., 2014). It helps in predicting how different an individual is from another, how productive and resourceful he or she can be and the ability to cope with stressful events of life. For Deci and Ryan (1995) there are two basic states of self-esteem and they are contingent and true self-esteem. Contingent self-esteem refers to feelings about oneself that results from and are dependent on matching standards of excellence or living up to interpersonal or intrapersonal expectations. It is mostly associated with narcissism and is situational oriented. True self-esteem is more stable and based on a solid and more secure sense of self. It is enduring and their worth would be an integrated aspect of oneself and would be reflected in an agency, proactively and vitality. Rosenberg (1965) opined that self-esteem helps individuals to understand themselves, respect themselves, know their limitations, and aim to grow above them overtime. Self-esteem is of two types namely, general or global and specific self-esteem. According to Rosenberg et.al (1995, Pg. 141), global self-esteem refers to "the individual's positive or negative attitude toward the self as a totality" while specific self-esteem refers to an individual's divided evaluation of different aspects or facets of the self. General or global self-esteem is different from specific self-esteem. Their existing differences do not make one more or less relevant than the other. Each has its reasons and plays a specific role. Global or general self-esteem deals with psychological well-being, while specific self-esteem deals with behaviours and critical evaluations (Rosenberg et al; 1995).

The formation of self-esteem implies a long process. It is correlated with the formation of self-image and self-concept (Ahmed et.al, 2016). Several studies have shown that Self-esteem is age-related (Morin et.al, 2013; Steiger et.al, 2014). Daily experiences and external contingencies such as level of success and failure, peer evaluation, and socio-cultural and economic background have influence and determine the level of self-esteem. (Crocker & Wolfe, 2001; Orth et.al., 2014). This explains reasons why adults who are poor, who are from dysfunctional families, and who are consistently picked upon by peers, think less of themselves. Studies have also shown that developmental periods have a strong influence on an individuals' self-esteem. Individuals experience low self-esteem from childhood to early adolescence, high self-esteem from early adolescence to late adulthood low self-esteem from late adulthood to old age. (Orth et al, 2014). Other factors such as cultural factors, academic grades, and social media can exert a level of influence on an individual. It is imperative to note that high or low self-esteem is a predictor not a consequence of life's success or failure (Orth et al., 2014).

In simpler terms, lifetime achievements are not determined by self-esteem. High self-esteem, serves a role of resilience or positive adaptation (Moksnes & Espnes, 2012). Self-esteem is significantly and positively associated with love of life, mental health, and satisfaction with life, happiness, and hope. (Abdel-Khalek, 2013). People with high self-esteem are more likely to persist in the face of a difficult task than are low self-esteem persons (Baumeister et al., 2013). High self-esteem individuals are more resilient to the stresses of life. A high level of self-esteem supplies individuals with the ability to accept happy moments, handle

unpleasant situations, effectively cope with challenges, engage in close relationships, and improve in their strengths (Ahmed et.al, 2016). High self-esteem individuals also appear to be more effective in self-regulating goal-directed behaviours (Di Paula & Campbell, 2002). Scholars such as Claes et.al (2015), and Andreasson, et al (2016) have reported that self-esteem can predict deliberate self-harm. Tatnell et.al (2014) conducted an exploratory study on the relationships between interpersonal factors (i.e. attachment, and social support) and self-harm. Participants were 1973 students (1414 female and 559 male) aged between 12 and 18 years ($M = 13.89$, $SD = 0.97$) recruited from 40 Australian high schools. Participants completed a questionnaire at two timepoints with a 12-month interval. Attachment anxiety was related to the onset of deliberate self-harm. Of the intrapersonal variables, self-esteem and self-efficacy were significant predictors of self-harm. Among these variables: self-esteem, self-efficacy, and cognitive reappraisal seem to be positive predictor of attachment anxiety and onset of deliberate self-harm.

A combination of interpersonal and intrapersonal variables contributes to the onset, maintenance, and cessation of self-harm in adolescence. Perceived family support appears to be an important safeguard against self-harm. Strategies targeting family functioning and teaching cognitive reappraisal techniques to adolescents may reduce the frequency of engaging in self-harm. In a similar cross-sectional study by Jang et. al (2014), on the relationships of self-esteem, and deliberate self-harm behavior among adolescents residing in Jeollabuk-do Province, Korea. A total of 2,964 adolescents (mean age 44.4years) participated in this study. Hierarchical regression analyses revealed that self-esteem was significantly associated with self-harm regardless of age and after controlling for depression. Development and implementation of preventive strategies, including improving self-esteem, could reduce self-harm and subsequent suicide attempts. Thus, we hypothesize that: H2: Self-esteem will negatively predict deliberate self-harm in a sample of sub-Saharan African youths.

Gender and Deliberate self-harm

Gender is considered in the present study as one of the demographic variables that have been linked with deliberate self-harm. Bach, (2012) sees it as the state of being male or female regarding social or cultural differences. It is a societal ruled category that every individual both male and female must belong to and identify with. Therefore, it is referred to the set of roles and responsibilities associated with an individual being a male or female, and it is relative to culture and tradition. It is not a biological makeup in terms of physical, sexual, and physiological characteristics; instead, it relates to the societal responsibilities and obligations attached to every individual. It is learned but can be changed due to some strong existing instrumentalities such as social change. This brings about gender polarization and fluidity in society. In some cultures gender can only be of a binary form, that is to say, you can either be a male or a female (Godman, 2018). You can easily identify the gender that one belongs to by his mode of dressing, societal characteristics, roles, and responsibilities.

In agreement with this, Godman (2018) asserts that gender as a phenomenon of societal value “cuts across a wide variety of dimensions: personal characteristics, clothing, and bodily aesthetics, work and relationship roles are all marked in a gendered manner. It is documented in the literature that gender plays a significant role in the rate at which an individual may indulge in DSH. For instance, Ritchie et.al (2016), examined the relationship between gender and types of childhood abuse, suicide attempts, and self-harm using a sample of 415 incarcerated adults (268 men, 147 women). Men and women were equally likely to experience childhood abuse, although women were more likely to report sexual abuse and men were more likely to report emotional neglect. Sexual abuse was the only type of abuse found to predict self-harm and suicide attempts in women. For men, physical abuse and physical neglect were significant predictors of self-harm and suicide attempts, respectively. In conclusion, their findings revealed gender differences in DSH. In a

similar study by Sornberger et.al (2012), on the examination of gender differences in DSH among a sample of 7,126 adolescents, 1,774 of them reported having engaged in deliberate self-harm.

Findings revealed that females reported higher rates of DSH; thus more cutting and scratching, and more injuries to arms and legs than their male counterparts. Males reported more burning and hitting-type behavior, as well as injuries to the chest, face, or genitals. In a similar study on gender, DSH, and drinking behaviour, Huang et.al (2017) reported gender differences with girls being higher on it. In another study by Whitlock et.al (2011) to understand basic self-harm characteristics and to explore sex differences. A random sample from eight universities was invited to participate in a web-based survey; 38.9% (n=14,372). The analysis assessed sex differences in self-harm prevalence, practices, severity, perceived dependency, and help-seeking; adjusted odds ratios for self-harm characteristics were calculated by sex status. Results show that lifetime self-harm prevalence rates averaged 15.3%. Females were more likely than males to self-injure because they were upset (Agency of Record (AOR) 1.6, 95% Confident Intervals (CI) 1.3-2.1) or in hopes that someone would notice them (AOR 1.6, 95% CI 1.1 – 2.7). Males were 1.6 times (95% CI, 1.2 – 2.2) more likely to report anger and 4.0 times (95% CI, 2.3 – 6.8) more likely to report intoxication as an initiating factor. Sexual orientation predicted self-harm, particularly for women ($F=8.81$, $p<.000$). Only 8.9% of the self-harm sample reported disclosing self-harm to a mental health professional. They concluded that self-harm is common in college populations but varies significantly by sex and sexual orientation. Thus, we hypothesize that: H3: Gender will predict deliberate self-harm in a sample of sub-Saharan African youths.

Method

Participants and Procedure

Participants in this study comprise 600 (300 males and 300 females) University students conveniently drawn from the University Of Nigeria Nsukka. Their ages ranged from 18- 26 years (Mean age = 21.84, SD = 1.81). Students were drawn across different departments from the two largest faculties (Education and Social Sciences), six departments from each of the faculties. 50 students were selected from each of the Departments. The researcher waited for the students to fill out the questionnaires and return them, but those who could go home with them were permitted, and were returned the next day after completion. Before responding to the questionnaires, they were briefed on the aim of the study and those who gave their consent were given copies of the questionnaire. No time limit was imposed on the participants for the completion of the questionnaires, and 650 copies of the questionnaires were distributed to the participants. Out of that, 620 returned, twenty were not properly filled and were discarded due to incomplete data. Thus, 600 were used for data analysis yielding a response rate of 92.3 %. Ethical approval was given by the Ethics Committee of the Department of Psychology, University of Nigeria, Nsukka.

Instruments

A psychological instrument comprising two sections was used for the study. Section **A** contains demographic characteristics such as gender, age, name of institution, and year of study. Section **B** comprises three instruments intended to examine different constructs. The measures are:

Adverse Childhood Experience International Questionnaire (ACES-IQ, World Health Organization, 2011)

This is a 43- item screening questionnaire developed by World Health Organization (2011). The instrument assesses various types of child abuse or trauma; neglect; household dysfunction; peer violence; sexual and emotional abuse and exposure to peer and collective violence. The ACE-IQ is designed to be integrated within borderline health surveys to allow an analysis of associations between adverse childhood experiences and subsequent health outcomes and health risk behaviours. The items in this questionnaire investigates childhood experiences and is sorted into thirteen categories: emotional abuse, physical abuse,

sexual abuse, violence against household members, living with household members who are abusers, living with household members who are mentally ill or suicidal, living with household members who were imprisoned, individuals with one or no patients, parental divorce and separation, emotional neglect, physical neglect, bullying, community violence, and collective violence. The questions were originally coded Q0-Q8, but the present researcher coded it 1-Not at all, 2- Somewhat, 3- A lot. Agbaje et.al (2021) reported a Cronbach's alpha of 0.87 with the Nigerian sample; while in this study we obtained a Cronbach's alpha of .78.

Rosenberg Self-esteem Scale (RSES, Rosenberg, 1965)

It is a ten-item Likert-type scale with items answered on a four-point scale-from Strongly Agree, to Strongly Disagree. This scale generally measures an individual's global self-esteem by asking the respondents to reflect on their current feelings and respond. Five of the items have positively worded statements and five have negatively worded ones. Any score below the mean indicated low self-esteem, while a score above the mean indicated high self-esteem. Sample items in the SES include 'I think I have a number of good qualities' and 'I feel I do not have much to be proud of'. On this scale, items 2,5,6,8, and 9 are reverse scored. Total obtainable scores including the reverse scores ranged from 10-40. Satisfactory reliability and validity have been described among the Nigerian sample (Oyefeso & Zacheaus, 1990). In the present study, we obtained a Cronbach's alpha of .86. A score below the mean indicated low self-esteem, while a score above the mean indicated high self-esteem.

Self-Harm Inventory (SHI, Sansone et al., 1995)

This inventory was developed by Sansone et al., (1995). It has 22 items and is a widely used self-report measure that lists 22 diverse self-harming behaviours, answered No or Yes, as well as open-ended questions. The Self-harm Inventory measures a broad range of deliberate self-harm behaviours: non-physical, (i.e. self-defeating thoughts) and physical (i.e. cut self), direct (i.e. hit self), and indirect (i.e. abuse alcohol), interpersonal (i.e. promiscuous), and suicidal (i.e. overdose) (Latimer, Covic, Cumming, & Tennant 2009). The Self-harm Inventory includes one item which covers attempted suicide though it is outside our accepted definition of deliberate self-harm, however, this item has been retained to test the psychometric properties of the complete version of the Self-harm Inventory (Latimer, et al., 2009)

Design and Statistics

This is survey research and a cross-sectional design was adopted in the study. Samples were drawn from the population at one time. Hierarchical multiple regression analysis using SPSS was used to analyze the data. The reason for using this type of analysis is because of its ability to determine the relative influence of one or more predictive variables with the criterion variable.

Results

Table 1: Correlations of demographic variables, Adverse Childhood Experiences (ACEs), self-esteem and deliberate self-harm (DSH)

Variables	1	2	3	4
1 Age	-			
2 Gender	.04	-		
3 ACEs	.04	.06	-	
4 Self-esteem	.04	.07	-.02	-
5 Deliberate Self-Harm	.06	.02	.25***	-.38***

Note *** $p < .001$; ** $p < .01$; * $p < .05$; Gender (0 = Male; 1 = female)

In Table 1, age and gender were not significantly associated with any of the variables in the study. Adverse Childhood experiences did not correlate with self-esteem in this study ($r = -.02$), but it was positively associated with deliberate self-harm ($r = .25$, $p < .001$). Self-esteem had a positive relationship with deliberate self-harm ($r = -.38$, $p < .001$).

Table 2: Hierarchical multiple regression predicting deliberate self-harm (DSH), by adverse childhood experiences (ACEs), self-esteem and gender

Predictors	Step 1		Step 2		Step 3	
	β	t	β	T	β	t
ACEs	.25	5.27***	.26	5.87***	.40	5.89***
Self-esteem			-.39	-8.85***	-.39	-8.85***
Gender					-.02	-.49
R^2	.06		.21		.21	
ΔR^2	.06		.15		.00	
F	27.72(1, 418)***		55.56(2, 417)***		37.06(1, 416)***	
ΔF	.27.72(1, 418)***		78.29(1, 417)***		.24(1, 416)	

** $p < .01$; *** $p < .001$;

Results of the hierarchical multiple regression for the test of the hypotheses is shown in Table 2.

In Step 1 of the regression model, adverse childhood experiences positively predicted deliberate self-harm, $\beta = .25$, $t = 5.27$, $p < .001$. ACEs contributed 0.6% in explaining the variance in deliberate self-harm ($\Delta R^2 = .06$), and the model was significant, $F(1, 418) = 27.72$.

In step 2, self-esteem was added in the regression model. It was a significant negative predictor of deliberate self-harm, $\beta = -.39$, $t = -8.85$, $p < .001$. The contribution of the self-esteem in explaining the variance in deliberate self-harm was 1.5% ($\Delta R^2 = .15$), and the model was significant, $F(2, 417) = 55.56$, $p < .001$.

In Step 3 gender was included in the regression model. It did not predict deliberate self-harm, $\beta = -.02$, $t = -.49$, $p < .001$. The contribution of gender in explaining the variance in deliberate self-harm was 0% ($\Delta R^2 = .00$), and the model was not significant, $F(1, 416) = 37.06$, $p < .001$.

Discussion

The study investigated the predictive roles of adverse childhood experiences; self-esteem and gender on deliberate self-harm in a sample of Nigerian university undergraduates. The results showed that Adverse Childhood Experiences significantly predicted deliberate self-harm. Thus the first hypothesis which stated that ACEs will significantly predict deliberate self-harm among youths in Nigeria was accepted. This shows that youths who were abused in their childhood, have the greatest tendency to engage in deliberate self-harm. The result of this study is consistent with the findings of Kaess, et.al (2013), and Cleare et.al (2018). Owing to this result, abuses of all forms can predispose one to engage in deliberate self-harm. Adverse childhood experiences consist of a series of child abuses that create and build painful experiences, which if not properly taken care of can affect one's life and living. These experiences affect an individual interpersonally and intrapersonal (Zyromski, 2018). In Nigeria abuses such as physical and sexual abuse are prevalent; arguably it is a way of life that some people passed through. The notion "spare the rod and spoil the child" is

highly employed in parenting processes and child upbringing. So actions or behaviours such as spanking, slapping, hitting, throwing of objects are seen as the perfect way of child upbringing rather than abuse. There are fewer rooms for advice and parental counseling, and factors that predispose an individual to act politely are mostly ignored. Thus in the context of the present study, the result revealed that youths who underwent such ugly experiences may resort to deliberate self-harm as a way of suppressing negative moods that usually crop up.

Self-esteem was found to be a significant negative predictor of deliberate self-harms (the higher the self-esteem, the lower the act). This suggests that people, who engage in deliberate self-harm, have low self-esteem. Thus the second hypothesis that self-esteem will significantly predict deliberate self-harm among youths was also accepted. The finding of this present study is in accordance with the findings of some researchers such as Tatnell et.al (2014), Forrester et.al (2017). The reasons for this result can be linked to resilience among youths with high self-esteem; in that, they will have the ability to bounce back and stand firm no matter what the challenges of life maybe instead of resorting to self-harm; while those of them with low self-esteem have no option other than resorting to self-injurious behaviors as a solution to their problems. Most individuals with high self-esteem may from time to time develop healthy stress management and healthy emotional coping mechanisms. Instead of self-harming themselves, they can engage in healthy and proper strategies for a healthy state of mind.

Also in this study, we found that gender was not a significant predictor of deliberate self-harm. Therefore, the third hypothesis which stated that gender will significantly predict deliberate self-harm among youths was rejected. This simply means that anyone can indulge in deliberate self-harm no matter the gender but depends solely on the individual. Our finding is in line with that of Kirchner et.al (2011) who reported no gender difference on deliberate self-harm.

Implications of the Findings

The study has both theoretical and practical implications. Theoretically, the study has added to the literature on deliberating self-harm by testing empirically the social learning theory, showing how possible it is for the youths to learn deliberate self-harm either through positive reinforcement or negative reinforcement hypotheses. Since this act (deliberate self-harm) can be learned simply by observing the models around, there is every tendency that youths who had the same experiences can as well practice the same behaviours.

Practically, having observed that adverse, childhood experiences are related to deliberate self-harm. The present researchers advocate that clinicians and developmental psychologists should engage parents, guardians, and other caregivers including the general public, and educate and sensitize them on the abnormal and negative impact of child abuse in society with a view of reducing and alleviating the problem of DSH in the society.

Another implication of this study is that an individual's self-esteem matters a lot. So youths should be encouraged on how best to build high self-esteem. This will help them to face the challenges of life with self-confidence rather than resorting to self-harm as an option. This study also revealed that deliberate self-harm is not gender-specific. That means anybody can engage in deliberate self-harm, depending on the emotions that elicit the abnormal behaviour.

Limitations of the study

These findings should be interpreted with caution as certain factors tend to limit their generalizability. One factor that may tend to affect this result is that the participants were predominantly undergraduates who may have other side factors that make them engage in self-harm. Thus this research represents a fragment of youths who are in a particular setting or environment. The perception about most individuals who engage in deliberate self-harm may affect an individual's response to the research questions. Most participants were ashamed of reporting of their engagement in self-harm. The reason maybe because of the conservative nature of African culture and the fear of being stigmatized. Thus this might have affected individual responses due to the social desirability factor. The samples of the study should include youths in other states in Nigeria as only youths from a particular higher institution in Enugu State participated in the study, so the result should be generalized with caution.

Suggestions for Further Studies

This study is supposedly one of the scientific endeavor into problematic behaviour of deliberate self-harm. It is suggested that future researchers should look more into the intensity and severity of deliberate self-harm. This research should also be conducted experimentally to observe the physiological changes such as blood pressure and heartbeat brought about by both adverse childhood experiences and deliberate self-harm. This study should also be conducted to observe the different forms of self-harm engaged in separately by males and females respectively. Also, it should be studied among social settings and individuals of different social statuses. Subsequent studies should also look at moderators and mediators of deliberate self-harm; as findings from such will help in developing better intervention programs that will help the sufferers.

In conclusion, since the present study has revealed the predictive roles of ACEs and self-esteem in developing DSH, every effort should be geared towards improving high self-esteem, and reducing any form of ACEs among youths in order to improve their well-being and quality of life.

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