

# Prevalence and psychosocial correlates of suicidal ideation among adolescents living with HIV in Southwestern Nigeria, West Africa

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## Abstract

**Introduction:** Adolescents with human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS) have been reported to have a higher prevalence of suicidal behavior compared to those who were HIV negative. Suicidal ideation is an important comorbidity in adolescents with HIV because it has been shown to be a good predictor of both attempted and completed suicide in this group of people.

**Material and methods:** Participants ( $n = 201$ ) who met the inclusion criteria were consecutively recruited from Lagos State University Teaching Hospital and the Nigerian Institute of Medical Research. Confidentiality was maintained. All the questionnaires were filled by participants, except for the MINI-Kid, which was administered by the researcher. Results were analyzed with SPSS version 20.

**Results:** Prevalence of current and lifetime suicidal ideation was 14.9% and 33.3% respectively. Non-disclosure ( $p = 0.021$ ) and physical and emotional abuse ( $p = 0.009$ ,  $p = 0.020$ ) were associated with lifetime suicidal ideation, while gender ( $p = 0.025$ ), primary school ( $p = 0.017$ ), polygamous family ( $p = 0.040$ ), poor social support ( $p = 0.031$ ), decline in academic performance ( $p = 0.005$ ), loss of family member ( $p = 0.007$ ), discrimination ( $p = 0.040$ ), and physical and emotional abuse ( $p = 0.027$ ,  $p = 0.002$ ) were associated with current suicidal ideation. Only loss of family member to HIV ( $p = 0.003$ ) was associated with current suicidal ideation after a binary logistic regression analysis.

**Conclusions:** Findings from this study highlight the need for clinicians to regularly assess adolescents with HIV infection for suicidal behavior, as failure to do this may further worsen the patients' condition.

HIV AIDS Rev 2019; 18, 4: 273-278

DOI: <https://doi.org/10.5114/hivar.2019.85949>

**Key words:** Nigeria, adolescents, suicidal ideation, HIV/AIDS, child abuse.

## Introduction

Suicidal behavior in people living with human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS) is an important health challenge globally and of great public health concern. Nigeria is considered to have

the second largest number of people living with HIV worldwide, 3.2 million, with a national HIV prevalence of 2.9% in adults and 5.2% in adolescents [1-3]. According to the World Health Organization (WHO), death as a result of suicide has increased by about 60% in the last ten years [3, 4]. Adolescents with HIV/AIDS are more prone to suicidal behavior

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**Article history:**  
Received: 02.01.2018  
Received in revised form: 23.05.2018  
Accepted: 23.05.2018  
Available online: 10.03.2019



because they are faced with developmental challenges which may be seriously complicated by the burden of the further need for lifelong medication [5].

Prevalence of lifetime suicidal ideation in United Kingdom HIV clinic attendees was 31% [6]; this was similar to the prevalence of 34% reported in a Nigerian study [7] but lower than the prevalence of 44% [8] reported in a Korean study. Current suicidal ideation was reported to have a prevalence of 19% [9] internationally, 17.1% [10] was reported in a South African study, while 13.6% [11] was reported among people living with HIV-AIDS in west Africa and 16% among adolescents with HIV in Nigeria [12].

Several risk factors have been reported to be associated with suicidal ideation in patients with HIV/AIDS. Some of the factors reported include younger age, female gender, poor social support, non-disclosure, non-university level of education, loss of a parent to death, family type, unstable relationship, physical abuse, sexual abuse, and emotional abuse [6, 13, 14]. Suicidal ideation is a good predictor of both attempted and completed suicide and when not identified early can lead to increased rates of morbidity and mortality [15, 16].

Most previous studies in sub-Saharan Africa have focused mainly on adults with HIV. There is therefore a scarcity of reports on the correlates of suicidal ideation among adolescents with HIV in this region – hence the need for the current study. The aim of this study was to determine the psychosocial and illness related correlates of both lifetime and current suicidal ideation among adolescents with HIV.

## Material and methods

This was a cross sectional study. A total of 201 adolescents living with HIV-AIDS were consecutively recruited to the study from 2 facilities including the HIV out-patient clinic of Lagos State University Teaching Hospital (LASUTH), Lagos, Nigeria, and the adolescent outpatient HIV clinic of the Nigerian Institute of Medical Research (NIMR), Yaba, Lagos, Nigeria. The 2 clinics have a total of about 400 registered adolescents (LASUTH = 200 and NIMR = 200).

### Participants

The participants for this study included adolescents aged between 10 and 19 years recruited from both clinics with a confirmed laboratory diagnosis of HIV. They each gave assent to participate in the study and had written consent from their caregiver. Adolescents with other co-morbid chronic medical conditions and those who were acutely ill were excluded from the study.

### Study instruments

Data were collected using the following:

1. A *socio-demographic and illness variable* questionnaire detailing (a) child variables such as age, gender, ethnicity, class in school (b) family variables such as parent's marital status, who the primary care giver is, family type (monogamous/

polygamous), mother's occupation, father's occupation (c) history of academic decline due to HIV-AIDS, discrimination due to HIV-AIDS and disclosure of HIV-AIDS status.

2. *Social support* was assessed using the "OSLO-3 item social support scale" which has a reliability of  $\alpha = 0.60$  and has been used by several Nigerian studies [17, 18].
3. *Physical, emotional and sexual abuse* were measured with the Adverse Childhood Experience Scale (ACE), which has concurrent validity with the Childhood Trauma Questionnaire and a reliability of  $\alpha = 0.80$  [19, 20].
4. *Lifetime and current suicidal ideation* were assessed using the specific questions from the suicidality modules of the Child version of the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID). Studies have shown that it has a reliability in the range  $\alpha = 0.73-1.00$  [21, 22], and it has also been used by a previous Nigerian study [22].

## Procedure

### Ethical approval

Ethical approval was obtained from the research ethics committees of LASUTH and NIMR. A signed consent form was taken from the parent/caregiver and verbal assent from adolescents aged less than 18 years while informed consent was taken directly from adolescents aged 18-19 years after they had been adequately informed about the study.

### Data collection

All adolescents who presented to the clinic and fulfilled the eligibility criteria were consecutively recruited to the study. After consent and assent had been obtained, recruited adolescents were given the questionnaire to complete in a private consulting room before they were attended to by the clinician. While they individually completed the pre-requisites (the socio-demographic and illness variable questionnaire, OSLO-3 and the ACE), the researcher then administered the Suicidality modules of the MINI-KID. Adolescents who required help in understanding some aspects of the first part of the questionnaire were helped by the researcher. Only one researcher administered the suicidality modules of the MINI-KID to all the participants to remove inter-rater bias. The duration of the interview was about 30 minutes per participant. Recruitment continued until the sample size was reached. Participants who had suicidal ideation were psycho-educated by the researcher along with their parents or caregivers, and were referred to an adolescent-friendly mental health facility in the state where the study was conducted.

### Statistical analysis

The software IBM SPSS version 20 was used to analyze all collated data. A frequency table was generated for relevant socio-demographic and illness variables in the par-

ticipants, association between two categorical variables was determined using the  $\chi^2$  test, while the *t*-test was used to compare mean values across groups. Binary logistic regression was used to determine variables that were independently associated with suicidal ideation.

## Result

### Characteristics of participants

A total of 201 adolescents with HIV infection participated in the study, with ages ranging from 10 to 19 years and mean age of 13.88 (SD  $\pm$  2.53) years. One hundred and twenty-four (61.7%) participants were male while 77 (38.3%) were female. One hundred and fifty-two (75.6%) participants were in secondary school; 76 (37.8%) in junior secondary school and 76 (37.8%) in senior secondary school, and 38 (18.9%) and 11 (5.5%) in primary and tertiary levels of education respectively. One hundred and thirty-seven (68.2%) participants were from a monogamous family setting while 64 (31.8%) were from a polygamous family setting. Forty-six (22.9%) participants had history of admission on account of HIV infection, 21 (10.4%) and 16 (8.0%) had a decline in academic performance and relationships respectively, while 19 (9.5%) participants had experienced discrimination due to HIV status. Forty participants (19.9%) had strong social support, 86 (42.8%) had moderate support while 75 (37.3%) participants had poor social support.

### Prevalence of abuse and suicidal ideation among participants

Physical abuse in childhood had the highest prevalence, 73.6% ( $n = 148$ ), followed by emotional abuse, 57.2% ( $n = 115$ ), then sexual abuse, 11.4% ( $n = 23$ ). The lifetime prevalence of suicidal ideation in adolescents with HIV infection was 33.3% ( $n = 67$ ) while the prevalence rate of current suicidal ideation was 14.9% ( $n = 30$ ) (Table 1).

### Correlates of current suicidal ideation among participants

There was a significantly higher rate of current suicidal ideation in participants who were female ( $p = 0.025$ ), had primary level of education ( $p = 0.017$ ), from a polygamous family ( $p = 0.021$ ), with poor social support ( $p = 0.031$ ), with a decline in academic performance ( $p = 0.005$ ), with loss of a family member to HIV ( $p = 0.007$ ), and those who had been discriminated on account of their HIV status ( $p = 0.044$ ). Similarly, participants who had been physically abused ( $p = 0.027$ ) and those with emotional abuse ( $p = 0.002$ ) in childhood were statistically more prone to suicidal ideation compared with those without these experiences (Table 2).

After a regression analysis, only those who had lost a family member to HIV were independently associated with current suicidal ideation. The independent variables accounted for about 42% of the variability of current suicidal ideation in adolescents with HIV infection (Table 3).

**Table 1.** Prevalence of childhood abuse and suicidal behavior among adolescents with HIV

| Variables                  | Frequency | Percentage (%) |
|----------------------------|-----------|----------------|
| Physical abuse             |           |                |
| Yes                        | 148       | 73.6           |
| No                         | 53        | 26.4           |
| Emotional abuse            |           |                |
| Yes                        | 115       | 57.2           |
| No                         | 86        | 42.8           |
| Sexual abuse               |           |                |
| Yes                        | 23        | 11.4           |
| No                         | 178       | 88.6           |
| Lifetime suicidal ideation |           |                |
| Yes                        | 67        | 33.3           |
| No                         | 134       | 66.7           |
| Current suicidal ideation  |           |                |
| Yes                        | 30        | 14.9           |
| No                         | 171       | 85.1           |

### Correlates of lifetime suicidal ideation among participants

Disclosure of HIV status was associated with lifetime suicidal ideation ( $p = 0.021$ ); also, participants with a history of physical abuse ( $p = 0.009$ ) and emotional abuse ( $p = 0.020$ ) were statistically more likely to have lifetime suicidal ideation than adolescents without these experiences (Table 2). However, none of these variables were independently associated with lifetime suicidal ideation after a binary logistic regression analysis (Table 3).

## Discussion

The prevalence of lifetime suicidal ideation among adolescents with HIV-AIDS in this study was 33.3%, which is similar to findings from previous studies carried out in Nigeria (34.7%) [23] and the UK (31.0%) [6]. This was however lower than the prevalence (44%) [8] reported among people living with HIV-AIDS in Korea. A possible reason for this difference may be that the Korean study was a survey. Also, the prevalence of current suicidal ideation (14.9%) in this study was similar to findings from previous studies conducted in Western Nigeria (13.6%) [24] and Uganda (13%) [25]. This study further emphasizes the high prevalence of suicidal ideation in this group of adolescents.

### Correlates of suicidal ideation among adolescents with HIV-AIDS

The current study shows that being female is significantly associated with a higher rate of current suicidal ideation in adolescents with HIV infection. This is in conformity with

**Table 2.** Association between socio-demographic factors and current suicidal ideation ( $n = 201$ )

| Variables                                       | Current suicidal ideation |             |       | Statistics |    |       |
|---|---------------------------|-------------|-------|------------|----|-------|
|   | Yes, $n$ (%)              | No, $n$ (%) | Total | $\chi^2$   | df | $p$   |
| <b>Current suicidal ideation</b>                |                           |             |       |            |    |       |
| Gender  |                           |             |       |            |    |       |
| Male  | 13 (10.5)                 | 111 (89.5)  | 124   | 5.029      | 1  | 0.025 |
| Female  | 17 (22.1)                 | 60 (77.9)   | 77    |            |    |       |
| Level of education                              |                           |             |       |            |    |       |
| Primary   | 12 (31.6)                 | 26 (68.4)   | 38    | 1.681      | 3  | 0.017 |
| Junior secondary school                         | 8 (10.5)                  | 68 (89.5)   | 76    |            |    |       |
| Senior secondary school                         | 10 (13.2)                 | 66 (86.8)   | 76    |            |    |       |
| Post-secondary school                           | 0 (0.0)                   | 11 (100.0)  | 11    |            |    |       |
| Family type                                     |                           |             |       |            |    |       |
| Monogamous                                      | 15 (10.9)                 | 122 (89.1)  | 137   | 5.358      | 1  | 0.021 |
| Polygamous                                      | 15 (23.4)                 | 49 (76.6)   | 64    |            |    |       |
| Oslo score                                      |                           |             |       |            |    |       |
| Poor social support                             | 17 (22.7)                 | 58 (77.3)   | 75    | 6.952      | 2  | 0.031 |
| Moderate social support                         | 11 (12.8)                 | 75 (87.2)   | 86    |            |    |       |
| Strong social support                           | 2 (5.0)                   | 38 (95.0)   | 40    |            |    |       |
| Decline in academic performance                 |                           |             |       |            |    |       |
| Yes   | 8 (38.1)                  | 13 (61.9)   | 21    | 9.914      | 1  | 0.005 |
| No  | 22 (12.2)                 | 158 (87.8)  | 180   |            |    |       |
| Family member lost to HIV                       |                           |             |       |            |    |       |
| Yes   | 13 (27.1)                 | 35 (72.9)   | 48    | 7.341      | 1  | 0.007 |
| No  | 17 (11.1)                 | 136 (88.9)  | 153   |            |    |       |
| Discrimination                                  |                           |             |       |            |    |       |
| Yes   | 6 (31.6)                  | 13 (68.4)   | 19    | 4.583      | 1  | 0.044 |
| No  | 24 (13.2)                 | 158 (86.8)  | 182   |            |    |       |
| Physical abuse                                  |                           |             |       |            |    |       |
| Yes   | 27 (18.2)                 | 121 (81.8)  | 148   | 4.866      | 1  | 0.027 |
| No  | 3 (5.7)                   | 50 (94.3)   | 53    |            |    |       |
| Emotional abuse                                 |                           |             |       |            |    |       |
| Yes   | 25 (21.7)                 | 90 (78.3)   | 115   | 9.828      | 1  | 0.002 |
| No  | 5 (5.8)                   | 81 (94.2)   | 86    |            |    |       |
| <b>Correlates of lifetime suicidal ideation</b> |                           |             |       |            |    |       |
| Reluctant to disclose status                    |                           |             |       |            |    |       |
| Yes   | 54 (30.5)                 | 123 (69.5)  | 177   | 5.323      | 1  | 0.021 |
| No  | 13 (54.2)                 | 11 (45.8)   | 44    |            |    |       |
| Physical abuse                                  |                           |             |       |            |    |       |
| Yes   | 57 (38.5)                 | 91 (61.5)   | 148   | 6.778      | 1  | 0.009 |
| No  | 10 (18.9)                 | 43 (81.1)   | 53    |            |    |       |
| Emotional abuse                                 |                           |             |       |            |    |       |
| Yes   | 46 (40.0)                 | 69 (60.0)   | 115   | 5.376      | 1  | 0.020 |
| No  | 21 (24.4)                 | 65 (76.5)   | 86    |            |    |       |

Significant  $p$  value ( $< 0.05$ ) in bold

**Table 3.** Binary logistic regression of factors associated with suicidal ideation

| Variables                         | B       | SE        | WALD  | df | p            | 95% confidence interval |       |        |
|-----------------------------------|---------|-----------|-------|----|--------------|-------------------------|-------|--------|
|                                   |         |           |       |    |              | OR                      | Lower | Upper  |
| <b>Current suicidal ideation</b>  |         |           |       |    |              |                         |       |        |
| Gender                            | -0.779  | 0.493     | 2.492 | 1  | 0.114        | 0.459                   | 0.174 | 1.207  |
| Educational level                 | 20.443  | 11208.954 | 0.000 | 1  | 0.999        | 755635.8                | 0.000 |        |
| Family type                       | -0.969  | 0.503     | 3.713 | 1  | 0.054        | 0.380                   | 0.142 | 1.017  |
| Lost family member                | 1.570   | 0.536     | 8.568 | 1  | <b>0.003</b> | 4.807                   | 1.680 | 13.757 |
| Academic decline                  | 1.059   | 0.644     | 2.706 | 1  | 0.100        | 2.884                   | 0.816 | 10.185 |
| Physical abuse                    | 0.793   | 0.848     | 0.875 | 1  | 0.350        | 2.211                   | 0.416 | 11.652 |
| Emotional abuse                   | 1.339   | 0.713     | 3.526 | 1  | 0.061        | 3.816                   | 0.943 | 15.448 |
| Discrimination                    | 0.870   | 0.747     | 1.357 | 1  | 0.244        | 2.386                   | 0.552 | 10.309 |
| Total Oslo score                  | -0.080  | 0.123     | 0.424 | 1  | 0.515        | 0.923                   | 0.725 | 1.175  |
| Constant                          | -20.939 | 11208.954 | 0.000 | 1  | 0.999        | 0.000                   |       |        |
| <b>Lifetime suicidal ideation</b> |         |           |       |    |              |                         |       |        |
| Disclosure                        | -0.857  | 0.463     | 3.431 | 1  | 0.064        | 0.424                   | 0.171 | 1.051  |
| Physical abuse                    | 0.704   | 0.455     | 2.389 | 1  | 0.122        | 2.021                   | 0.828 | 4.932  |
| Emotional abuse                   | 0.325   | 0.378     | 0.738 | 1  | 0.390        | 1.383                   | 0.660 | 2.900  |
| Constant                          | -0.450  | 0.629     | 0.512 | 1  | 0.474        | 0.638                   |       |        |

B – coefficient for the constant (intercept), SE – standard error, WALD – Wald  $\chi^2$  test, OR – odds ratio, p – significant p value (< 0.05) in bold font

reports from previous studies [16, 26] and may be due to females' tendency to internalize stressful events, as compared to males, who tend to act them out [27].

Adolescents who had poor social support were found to manifest a significantly higher rate of current suicidal ideation than those who had good social support. This is also in conformity with previous studies [28, 29]. This highlights the importance of educating family members on the need for adequate support in the management of this group of adolescents.

There have been reports in previous studies on the influence of family type on suicidal behavior [30]. A cross-sectional study among adolescents in southwest Nigeria reported that adolescents from polygamous family settings were more likely to have suicidal ideation than those from monogamous family settings [30]. Similarly, the current study shows a significantly higher rate of suicidal ideation among participants from a polygamous family setting. People who had not disclosed their HIV status to others were more likely to have a significantly high rate of lifetime suicidal ideation than those who had disclosed their status to others; this is however contrary to findings among adult Nigerians living with HIV [31].

Data on the relationship between suicidal ideation and loss of a family member due to HIV-AIDS among adolescents living with HIV in sub-Saharan Africa are scarce. The finding in this current study, which shows a significantly higher rate of suicidal ideation among adolescents who have lost a family member to HIV, is therefore relatively new and indicates that physicians need to pay closer attention to this when managing adolescents living with HIV.

Decline in functioning may prime the mind of an individual to negative expectations regarding the outcome of their situation [32]. Conversely, good academic grades have been reported to be protective against suicidal behavior [33]. These factors may explain why there was a higher rate of suicidal ideation in participants with a decline in relationships and academic performance in this study.

### Association between childhood abuse and suicidal behavior

Presence of either physical or emotional abuse has been linked with a higher rate of suicidal behavior among adolescents living with HIV [34]. Emotional abuse may affect a child's self-concept and esteem, making the child feel worthless and incapable, and subsequently such a child may develop various forms of suicidal behavior [35]. The significantly higher rate of suicidal ideation in adolescents with a history of physical and/or emotional abuse in this study therefore emphasizes the urgent need for prevention of abuse among these group of adolescents.

Sexual abuse in childhood has been reported in previous study to be associated with higher rate of suicidal ideation among adolescents in the community [30]. Contrary to this however, the current study did not show any difference in rate of suicidal ideation between adolescents with HIV who had childhood history of sexual abuse and those without such experience. Reason for this may be multifactorial and as such further research is necessary to determine the influence of sexual abuse on suicidal behavior among adolescents in

the community compared to those with specific medical illness such as HIV infection.

## Conclusions

The current study reports a high occurrence of suicidal ideation among adolescents with HIV and also identified factors that were associated with this occurrence. It can be concluded from this finding that treatment of this group of adolescents should not be limited to prescription of medications alone but should also include regular psychological assessment, psycho-education and counseling.

## Conflict of interest

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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