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# Characteristics of higher education students who reported sexual violence: a Nigerian national study

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## Abstract

**Background** Sexual violence among higher education students is a global public health problem. Identifying the characteristics of students who report victimization can serve as basis for programmes that target vulnerable students.

**Methods** The study was conducted among 30,114 Nigerian higher education students. They were selected from 18 institutions comprising universities, polytechnics, and colleges of education. The purpose of the study was to assess the characteristics of students who reported sexual violence (rape, attempted rape and sexual harassment) and to determine the association between reporting and their characteristics.

**Results** Our findings showed that 37% of the students reported experiencing sexual violence. Regression analysis showed that the odds of reporting among female students were two times greater than that of the male students (CI= 1.58–1.78;  $P < 0.001$ ). The students who were traditionalists (aOR= 2.65,  $p < 0.001$ ) or from other religious groups (aOR= 3.28,  $p < 0.001$ ) had higher odds of reporting than those who were Christians. All the age groups represented in the study had significantly higher odds of reporting except those between 25 and 29 years (aOR= 1.03;  $p = 0.616$ ). Non-final year students had significantly 7% lower odds of reporting ( $p = 0.037$ ) than the first-year students. The students in the arts and humanities-related programmes significantly had higher odds of reporting than those in the science-related programs (aOR= 1.08;  $p = 0.043$ ). In addition, polytechnic and colleges of education students were two times more likely to report sexual violence than university students ( $p < 0.001$ ). Also, the students from other regions were two times more likely to report sexual violence than those from Southwest region.

**Conclusion** The study concluded that sexual violence reporting by higher education students differ by their types of schools, sex, religion, level of education and geographical location.

**Keywords** Characteristics, Higher education, Attempted rape, Rape, Sexual harassment, Sexual violence

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## Introduction

Sexual violence, described as an infringement on others' fundamental sexual rights, has gradually increased in the 21st century and has been termed a global health problem [1]. A wide range of sexually violent acts can take place in different circumstances and settings. These include acts of rape, either in a relationship or during armed conflict; sexual harassment (including demanding sex in return for favors); sexual abuse of children or mentally or physically disabled people; forced marriage; female genital mutilation; forced prostitution; among many others [2]. Whatever types or forms of sexual violence an individual experience, the short- and long-term effects such as anxiety, depression, physical injury, unwanted pregnancy, criminal abortion, sexually transmitted infections, unstable marriage, incomplete education, and substance abuse, among others, are documented in the literature [3–5].

All over the world, sexual violence has generally been underreported, and that makes it difficult to determine its global prevalence. However, researchers have documented different prevalence rates by forms of sexual violence, age groups, gender, and occupation, among others [6]. The key facts on sexual violence, as documented by UNICEF, show that adolescent girls and boys, adult women, and children had at one point in their lives experienced forced sexual relations [6]. In the United States of America, it has been documented that every 73 s, an American is sexually assaulted [5]. In South Asia, a systematic review study revealed that the prevalence rates of sexual aggression vary widely across studies, and victimisation is widespread among different social groups, irrespective of sex and sexual orientation [7]. Also, in Ethiopia, sexual assault, including rape, was found to account for 3% of all gynecologic outpatient visits [8], while a prevalence rate of 23% has been reported in Sierra Leone [9]. In Nigeria, the culture of silence has made it impossible to know the exact prevalence of sexual violence; however, sexual violence has recently been described to be rampant in the Nigerian society [3]. The most commonly reported forms of sexual violence in many societies all over the world are rape and sexual harassment and assault, which have been found to occur among different age groups and classes [10].

The prevalence of sexual violence has increasingly been documented in educational institutions all over the world, most especially higher educational institutions [11, 12]. Turchik et al. observed that attempted rape, rape, and sexual assault were the most common acts of sexual violence, with both male and female genders being victims and perpetrators [13]. Institutions in Nigeria are not exempted from this demeaning global occurrence. Usually, the academic system is designed to be a desirable environment for learning and working where students and staff can pursue their day-to-day activities without

being violated. The system, being a learning environment, is expected to be a unique place for eradicating inequalities among all groups of people; however, this has not been the case in many institutions. In 2018, the Punch Newspaper documented that sexual violence is a problem at all educational levels in Nigeria, including apprenticeship programs [14]. Similarly, the British Broadcasting Corporation (BBC) reported that sexual harassment of students by lecturers is endemic in West African universities, with testimony from undercover journalists who reported incidence of sexual harassment in the University of Lagos, Southwest Nigeria [15].

Other institutions in which sexual violence has been reported include Obafemi Awolowo University, in Southwest Nigeria [16], the University of Port Harcourt in Southsouth Nigeria [17], and Ebonyi State University, in Southeast, Nigeria [18]. In addition, in Imo State, Southeast Nigeria, a study conducted in different categories of higher institutions comprising universities, colleges of education, polytechnics, schools of nursing, and seminary schools indicated that the current and lifetime prevalence of sexual violence among female students was 15.2% and 34%, respectively [19]. It was further reported by Duru et al., that the commonest form of sexual violence experienced by female students was fondling and grabbing of sensitive body parts (52.5%) [19]. Exploring sexual harassment in three categories of higher educational institutions (universities, polytechnics, and colleges of education) in northeast Nigeria, has shown that there is no significant difference in the prevalence of sexual harassment experiences among students in the schools [20]. Aside from female students experiencing sexual violence [19, 21], Akinbode and Ayodeji also documented that male students are not exempted from the acts [22].

Moreover, many of the sexual violence studies among higher education students in Nigeria have been conducted to determine the prevalence, perception, predictor, and types of sexual harassment experienced by the students [22–25], pattern, determinants and complications [8, 19], and sex variations [26]. However, none of these studies have assessed the exact characteristics of the students who have reported the violence. Some of these studies have also not assessed the characteristics of the students across different higher education institutions. In other parts of the world, the characteristics of sexual violence victims have been assessed and considered. The study by Wood et al., in the United States of America showed that Caucasian students reported more victimisation than students from other ethnicities [11]. Klein and Martin also reported that being white, female, or a sexual minority increases the likelihood of experiencing sexual harassment [27]. Additionally, other studies have reported being female, gender-binary

non-conformant, coming from poorer community settings, being in the first year of enrolment, being younger, having a disability and exhibiting symptoms of mental ill-health, experiencing childhood sexual abuse, and having traumatic experiences as characteristics of sexually victimised female students [28, 29]. Wood et al. opined that traits such as ethnicity, race, and religion are important characteristics to consider when assessing the sexual violence victimisation of students [11].

Additionally, over the years, the governmental and non-governmental agencies in Nigeria have paid attention to the university systems on issues relating to sexual violence. Victims have reported, blown the whistle, and publicised victimisation in universities [16, 17]. On many occasions, attention has been paid to university lecturers in Nigeria as perpetrators of sexual violence against their students, but little or no attention has been paid to other higher education institutions, such as the polytechnics and the colleges of education [14]. Many of the Nigerian studies among students of higher education institutions in Nigeria did not focus on the characteristics of the students that reported sexual violence [22–25]. Majority of the studies focused on the university students while many other categories of higher education institutions such as the polytechnics and colleges of education were rarely explored. We therefore conducted a national survey to identify the characteristics of the students that reported sexual violence (rape, attempted rape, and sexual harassment) in Nigerian higher education institutions across three different types of institutions (universities, polytechnics, and colleges of education). We also determined the probability of the students reporting sexual violence based on their characteristics.

## Materials and methods

The study is a fraction of a larger study that was conducted in 18 public higher educational institutions in Nigeria using a cross-sectional descriptive design. Data collection was between January and December, 2021. A total of 30,114 students which was determined using Cochran's survey sample size formula  $n = z^2 pq / e^2$  participated in the study. Multistage, stratified sampling technique was used to select the students. Nigeria is already stratified into six geo-political zones and in each zone, government-owned higher education institutions were stratified by university, polytechnic and college of education. In each of the stratum, one institution was selected using simple random sampling technique (balloting) thereby giving a total of three schools from each zone. Simple random selection of departments from each institutions were done followed by the students' stratification into male and female gender. A random selection was finally used to select the students from each gender stratum. The sexual violence experiences of the students

were assessed using an adapted questionnaire. The questionnaire was structured after the Sexual Experiences Short Form Victimization (SES-SFV) scale developed by Koss et al. [30]. The scale assessed sexual violence victimisation (harassment, rape, and attempted rape) in the past 12 months on a three-item tool, scored on a four-point Likert scale (0, 1, 2, 3+). The sexual experiences scale has been documented to have good psychometric properties in the studies of Koss et al. [30] and Anderson et al. [31]. In this study, the Cronbach's alpha reliability coefficient of the three-item tool was 0.80. Previously, a pilot study was conducted [32], which confirmed the feasibility of the study. Out of the 30,114 questionnaires administered, a total of 26,161 questionnaires were retrieved from the field. After sorting out the questionnaires, a total of 21,937 were completely and properly filled out and were adequate for data analysis, giving a response rate of 72.8%. Data entry was done by nine Data Entry Clerks over a period of seven months using Epi Info software version 3.1 and the data were later exported to SPSS version 27 [33]. Full information on the research methods is documented in the study data note of Ogunfowokan et al. [34].

## Data analysis

Sexual violence was defined as attempted rape, rape, or sexual harassment in this study. Attempted rape was considered if the response to the question "In the past 12 months, how many times has someone attempted to rape you?" was greater than zero. Rape was considered if the response to the question, "In the past 12 months, how many times has someone actually raped you?" was greater than zero. Sexual harassment was considered if the response to the question "In the past 12 months, how many times has someone actually threatened or intimidated you to have sex with you, or attempted or actually fondled, kissed, bullied you, or touched you in a sexually inappropriate manner?" was greater than zero. Participants who reported to have experienced at least one of these violating acts (rape, attempted rape, or sexual assault) were considered to have ever experienced sexual violence. However, this study assumes that those who did not report any of these acts did not experience sexual violence. Experiences were categorised into Ever Experienced Sexual Violence ( $\geq 1$ ) or No Experience (0). Each of the forms of sexual violence (sexual harassment, rape, and attempted rape) was analysed separately. Descriptive statistics, such as frequencies and percentages, were used to describe these variables. A chi-square test was used to determine the statistical association between the students' reports and their characteristics. Binary logistic regression was further used to estimate the students' odds of reporting and their characteristics. Significance level was set at  $p \leq 0.05$ .

## Results

We set out to identify the characteristics of higher education students who reported sexual violence (attempted rape, rape, and sexual harassment), and we also determined if these characteristics were associated with their reports. We presented three tables depicting the results of the study. Table 1 describes the characteristics of the students in the sample, and we observed that the sample comprised predominantly 56% female students, 59% Christians, and 73% young people ( $\leq 24$  years). The non-graduating students accounted for 44% of the student population, while those in science-related programs had the highest population (49%). Many of the students were university students (54%), and they were residents of the northeastern part of the country (23%). Students from the North central region accounted for 9% of the students' population.

**Table 1** Socio-demographic characteristics of the students

| Student variables                     | Freq. (n=21,937) | %    |
|---------------------------------------|------------------|------|
| <b>Sex</b>                            |                  |      |
| Male                                  | 9748             | 44.4 |
| Female                                | 12,189           | 55.6 |
| <b>Religion</b>                       |                  |      |
| Christianity                          | 12,849           | 58.6 |
| Islam                                 | 8195             | 37.4 |
| Traditional                           | 723              | 3.3  |
| Others                                | 170              | 0.8  |
| <b>Age group</b>                      |                  |      |
| 16–19 years                           | 2823             | 12.9 |
| 20–24 years                           | 13,103           | 59.7 |
| 25–29 years                           | 4687             | 21.4 |
| $\geq 30$ years                       | 1324             | 6.0  |
| <b>Year of study</b>                  |                  |      |
| First year                            | 6430             | 29.3 |
| Non-graduating year                   | 9638             | 43.9 |
| Final-year                            | 5869             | 26.8 |
| <b>Faculty</b>                        |                  |      |
| Science/Technology/Health/Agriculture | 10,684           | 48.7 |
| Arts/Humanities                       | 4336             | 19.8 |
| Social-Science/Admin                  | 4393             | 20.0 |
| Law                                   | 901              | 4.1  |
| Environmental Design                  | 1623             | 7.4  |
| <b>Type of institution</b>            |                  |      |
| University                            | 11,902           | 54.3 |
| Polytechnic                           | 3913             | 17.8 |
| College-of-education                  | 6122             | 27.9 |
| <b>Region</b>                         |                  |      |
| Southwest                             | 4568             | 20.8 |
| Southsouth                            | 3824             | 17.4 |
| Southeast                             | 2874             | 13.1 |
| Northwest                             | 3783             | 17.2 |
| Northcentral                          | 1907             | 8.7  |
| Northeast                             | 4981             | 22.7 |

Our analysis also showed that out of the 21,937 students whose questionnaires were analysed, 8,111 (37%) reported having experienced sexual violence. Table 2 gives information on the proportion of students who reported sexual violence according to the three different forms of sexual violence, and the test of association for their reports. Findings from this table indicated that proportion of female students (43%) that reported sexual violence is higher than that of male (30%). Also, a higher proportion of those whose religion is traditional (60%), those belonging to other religious groups (64%), the final-year students (40%), and those in the colleges of education (44%), polytechnics (42%), Faculties of Arts and Humanities (42%), and those from the Northeast (42%) and Southeast (41%) regions of the country reported sexual violence. These higher proportion values for these categories of students earlier reported are also reflected in their report of rape, attempted rape, and sexual harassment. A statistically significant association was observed between each of the different categories of the students and their reported experience ( $P=0.001$ ), except for age group and sexual violence ( $\chi^2(3)=3.71$ ;  $p=0.295$ ); age group and attempted rape ( $\chi^2(3)=3.13$ ;  $p=0.373$ ); and age group and rape ( $\chi^2(3)=1.5$   $p=0.673$ ).

Table 3 presents information on the logistic regression analysis, which further determined the probability of the students reporting sexual violence according to their characteristic. Our results showed that the odds of reporting sexual violence among female students were two times greater than that of male students (aOR=1.68;  $p<0.001$ ). The students who were traditionalists (aOR=2.65,  $p<0.001$ ) or from other religious groups (aOR=3.28,  $p<0.001$ ) had higher odds of sexual violence reporting than those who were Christians. All the age groups represented in the study had significantly higher odds of reporting sexual violence except those between ages 25 and 29 years (aOR=1.03;  $p=0.616$ ). Non-graduating students had significantly 7% lower odds of reporting ( $p=0.037$ ) than the first-year students. The students in the arts and humanities-related programs significantly had higher odds of reporting than those in the science-related programs (aOR=1.08;  $p=0.043$ ). In addition, polytechnic and colleges of education students were two times more likely to report sexual violence than university students ( $p<0.001$ ). Analysing the regions, the students from other regions were two times more likely to report sexual violence than those from Southwest region.

## Discussion

### Characteristics of the students

This study was set out to identify the characteristics of higher education students who reported sexual violations; however, unintended results were discovered in the study. We observed that there were more female

**Table 2** Self-report of sexual violence according to the characteristics of the students

| Characteristics  | Ever Experi-<br>enced Sexual<br>Violence* | Test of<br>Association | Ever Ex-<br>perienced<br>Attempted<br>Rape | Test of<br>Association | Ever Ex-<br>perienced<br>Rape | Test of<br>Association | Ever Experi-<br>enced Sexual<br>Harassment | Test of<br>Asso-<br>ciation |
|--|---|------------------------|--|------------------------|-------------------------------|------------------------|--|-----------------------------|
|  | Freq. (%)                                 |                        | Freq. (%)                                  |                        | Freq. (%)                     |                        | Freq. (%)                                  |                             |
| <b>Sex</b>   |   | $p < 0.001$            |  | $p < 0.001$            |                               | $p < 0.001$            |  | $p < 0.001$                 |
| Male ( $n = 9,748$ )   | 2917 (29.9)                               |                        | 1923 (19.7)                                |                        | 1523 (15.6)                   |                        | 2346 (24.1)                                |                             |
| Female ( $n = 12,189$ )  | 5194 (42.6)                               |                        | 3397 (27.9)                                |                        | 2138 (17.5)                   |                        | 4061 (33.3)                                |                             |
| <b>Religion</b>  |   | $p < 0.001$            |  | $p < 0.001$            |                               | $p < 0.001$            |  | $p < 0.001$                 |
| Christianity ( $n = 12,849$ )                                  | 4637 (36.1)                               |                        | 2962 (23.1)                                |                        | 1890 (14.7)                   |                        | 3652 (28.4)                                |                             |
| Islam ( $n = 8,195$ )  | 2931 (35.8)                               |                        | 2029 (24.8)                                |                        | 1552 (18.9)                   |                        | 2329 (28.4)                                |                             |
| Traditional ( $n = 723$ )                                      | 434 (60.0)                                |                        | 246 (34.0)                                 |                        | 164 (22.7)                    |                        | 338 (46.7)                                 |                             |
| Others ( $n = 170$ )   | 109 (64.1)                                |                        | 83 (48.8)                                  |                        | 55 (32.4)                     |                        | 88 (51.8)                                  |                             |
| <b>Age group</b>   |   | $p = 0.295$            |  | $p = 0.373$            |                               | $p = 0.673$            |  | $p = 0.001$                 |
| 15–19 yrs. ( $n = 2,823$ )                                     | 1013 (35.9)                               |                        | 665 (23.6)                                 |                        | 472 (16.7)                    |                        | 786 (27.8)                                 |                             |
| 20–24 yrs. ( $n = 13,103$ )                                    | 4879 (37.2)                               |                        | 3202 (24.4)                                |                        | 2174 (16.6)                   |                        | 3959 (30.2)                                |                             |
| 25–29 yrs. ( $n = 4,687$ )                                     | 1709 (36.5)                               |                        | 1153 (24.6)                                |                        | 805 (17.2)                    |                        | 1297 (27.7)                                |                             |
| $\geq 30$ yrs. ( $n = 1,324$ )                                 | 510 (38.5)                                |                        | 300 (22.7)                                 |                        | 210 (15.9)                    |                        | 365 (27.6)                                 |                             |
| <b>Year of study</b>   |   | $p < 0.001$            |  | $p < 0.001$            |                               |                        |  | $p < 0.001$                 |
| 1st year ( $n = 6,430$ )                                       | 2430 (37.8)                               |                        | 1627 (25.3)                                |                        | 1201 (18.7)                   | $p < 0.001$            | 1932 (30.0)                                |                             |
| Non graduating year<br>( $n = 9,638$ )                         | 3348 (34.7)                               |                        | 2192 (22.7)                                |                        | 1409 (14.6)                   |                        | 2613 (27.1)                                |                             |
| Final year ( $n = 5,869$ )                                     | 2333 (39.8)                               |                        | 1501 (25.6)                                |                        | 1051 (17.9)                   |                        | 1862 (31.7)                                |                             |
| <b>Type of institution</b>                                     |   | $p < 0.001$            |  | $p < 0.001$            |                               | $p < 0.001$            |  | $p < 0.001$                 |
| University ( $n = 11,902$ )                                    | 3771 (31.7)                               |                        | 2270 (19.1)                                |                        | 1236 (10.4)                   |                        | 2995 (25.2)                                |                             |
| Polytechnic ( $n = 3,913$ )                                    | 1623 (41.5)                               |                        | 1070 (27.3)                                |                        | 834 (21.3)                    |                        | 1271 (32.5)                                |                             |
| College-of-education<br>( $n = 6,122$ )                        | 2717 (44.4)                               |                        | 1980 (32.3)                                |                        | 1591 (26.0)                   |                        | 2141 (35.0)                                |                             |
| <b>Region</b>  |   | $p < 0.001$            |  | $p < 0.001$            |                               | $p < 0.001$            |  | $p < 0.001$                 |
| South-West ( $n = 4,568$ )                                     | 1442 (31.6)                               |                        | 881 (19.3)                                 |                        | 553 (12.1)                    |                        | 1165 (25.5)                                |                             |
| South-South ( $n = 3,824$ )                                    | 1424 (37.2)                               |                        | 865 (22.6)                                 |                        | 490 (12.8)                    |                        | 999 (26.1)                                 |                             |
| South-East ( $n = 2,874$ )                                     | 1190 (41.4)                               |                        | 865 (30.1)                                 |                        | 618 (21.5)                    |                        | 1032 (35.9)                                |                             |
| North-West ( $n = 3,783$ )                                     | 1241 (32.8)                               |                        | 826 (21.8)                                 |                        | 411 (10.9)                    |                        | 992 (26.2)                                 |                             |
| North-Central ( $n = 1,907$ )                                  | 713 (37.4)                                |                        | 404 (21.2)                                 |                        | 302 (15.8)                    |                        | 544 (28.5)                                 |                             |
| North-East ( $n = 4,981$ )                                     | 2101 (42.2)                               |                        | 1479 (29.7)                                |                        | 1287 (25.8)                   |                        | 1675 (33.6)                                |                             |
| <b>Faculty</b>   |   | $p < 0.001$            |  | $p < 0.001$            |                               | $p < 0.001$            |  | $p < 0.001$                 |
| Science related ( $n = 10,684$ )                               | 3819 (35.7)                               |                        | 2427 (22.7)                                |                        | 1641 (15.4)                   |                        | 3011 (28.2)                                |                             |
| Humanities related<br>( $n = 4,336$ )                          | 1806 (41.7)                               |                        | 1277 (29.5)                                |                        | 958 (22.1)                    |                        | 1417 (32.7)                                |                             |
| Social science and Adminis-<br>tration related ( $n = 4,393$ ) | 1554 (35.4)                               |                        | 976 (22.2)                                 |                        | 602 (13.7)                    |                        | 1235 (28.1)                                |                             |
| Law ( $n = 901$ )  | 313 (34.7)                                |                        | 226 (25.1)                                 |                        | 151 (16.8)                    |                        | 241 (26.7)                                 |                             |
| Environmental-design<br>related ( $n = 1623$ )                 | 619 (38.1)                                |                        | 414 (25.5)                                 |                        | 309 (19.0)                    |                        | 503 (31.0)                                 |                             |

\*Reported at least one of rape, attempted rape and sexual harassment

students in the study institutions. This is in line with the global concern that students in higher educational institutions are predominantly females. As far back as 2008, Vincent-Lancrin documented that in Organisation of Economic Cooperation and Development (OECD) countries, there is a reversal in gender inequalities as there are more women in undergraduate higher education than men [35]. Vincent-Lancrin further made a projection that the number of women might outnumber that of men in

graduate education if the situation is not addressed for gender equality [36]. Similarly, Spiertz [36] has reported from the Netherlands statistics that for 23 consecutive years, there have been more women than men in higher education in the country. In an over 20 years sex analysis study of students' enrolment in Nigerian universities conducted by Adeyemi and Akpotu, they discovered that female student enrollment in higher institution has been on the increase since 1989 most especially in the



**Table 3** Odds of reporting sexual violence by higher education students

| Characteristics                       | AOR  | 95% CI |      | p-value |
|---------------------------------------|------|--------|------|---------|
| <b>Sex</b>                            |      |        |      |         |
| Male                                  | 1.00 |        |      |         |
| Female                                | 1.68 | 1.58   | 1.78 | <0.001  |
| <b>Religion</b>                       |      |        |      |         |
| Christianity                          | 1.00 |        |      |         |
| Islam                                 | 0.95 | 0.89   | 1.02 | 0.140   |
| Traditional                           | 2.65 | 2.26   | 3.10 | <0.001  |
| Others                                | 3.28 | 2.37   | 4.52 | <0.001  |
| <b>Age group</b>                      |      |        |      |         |
| 16–19 years                           | 1.00 |        |      |         |
| 20–24 years                           | 1.11 | 1.02   | 1.22 | 0.019   |
| 25–29 years                           | 1.03 | 0.92   | 1.14 | 0.616   |
| ≥ 30 years                            | 1.17 | 1.01   | 1.35 | 0.036   |
| <b>Year of study</b>                  |      |        |      |         |
| First year                            | 1.00 |        |      |         |
| Non-graduating year                   | 0.93 | 0.87   | 1.00 | 0.037   |
| Final year                            | 1.05 | 0.98   | 1.14 | 0.186   |
| <b>Faculty</b>                        |      |        |      |         |
| Science/Technology/Health/Agriculture | 1.00 |        |      |         |
| Art/Humanities                        | 1.08 | 1.00   | 1.17 | 0.043   |
| Social science/Admin                  | 0.93 | 0.86   | 1.00 | 0.063   |
| Law                                   | 1.07 | 0.92   | 1.24 | 0.383   |
| Environmental design                  | 1.06 | 0.95   | 1.18 | 0.330   |
| <b>Type of institution</b>            |      |        |      |         |
| University                            | 1.00 |        |      |         |
| Polytechnic                           | 1.52 | 1.40   | 1.65 | <0.001  |
| College of education                  | 1.58 | 1.47   | 1.70 | <0.001  |
| <b>Region</b>                         |      |        |      |         |
| Southwest                             | 1.00 |        |      |         |
| Southsouth                            | 1.18 | 1.07   | 1.30 | 0.001   |
| Southeast                             | 1.57 | 1.41   | 1.74 | <0.001  |
| Northwest                             | 1.10 | 0.99   | 1.21 | 0.077   |
| Northcentral                          | 1.31 | 1.17   | 1.48 | <0.001  |
| Northeast                             | 1.33 | 1.21   | 1.46 | <0.001  |
| <b>Constant</b>                       | 0.27 | 0.24   | 0.30 | <0.001  |

Southern zone of the country [37]. Also the Nigerian Statista Research Department documented that 51% of the students in private institutions are females [38]. The findings from our study have shown that across polytechnics, colleges of education, and universities, female students outnumbered male students. As far back as 2010, Fatunde reported that women could soon outnumber their male counterparts in the country's universities quoting the then recently released statistics that showed the proportion of female students in universities which rose from 7.7% in 1960 to 45% in 2009. Having fewer male students enrollment in higher institutions of learning compared to females calls for concern. The school settings have been recognized as the environment for correcting wrong perceptions about gender-based violence (GBV) and also for building skills for prevention of GBV

[39]. Aside from this, since females are disproportionately affected by sexual violence, group and individual school-based education for male peers could serve as preventive measures for sexual violence victimization of female students. In addition, Gong [40] has documented that increasing educational attainment leads to lower engagement in criminal activities which are due to factors such as improved employment opportunities, decreased desire for delinquency, and prevention of youth crime. We are also of the opinion that formal and higher education for male youth population will be an effective measures to curb sexual violence victimization of young girls more so that the Nigerian population constitute 60% of young people [41].

#### Sexual violence reporting by the students' characteristics

The percentage of the students who reported sexual violence (37%) this study (37%) is more than what was reported in previous Nigerian studies. Duru et al.'s study conducted among students of various higher institutions in Nigeria showed a 15.2% current and 34% lifetime prevalence of sexual violence among them [19]. Our findings (37%) are also higher than the 20% prevalence reported in South Africa [32] and the 34%, twelve-month prevalence reported in Ethiopia [42]. In essence, this study is an indication that sexual violence is increasing in Nigerian higher educational institutions. The fact that male students reported sexual violence in this study confirms previous empirical evidence that male students also fall victims [22] and that female students reports the incidence more [12, 43]. By the results of this study, we are also supporting the assertion that sexual violence prevention programming should cut across both sexes and that emphasis should also be laid on male students as well as the female students as victims [44].

Nigeria is a multi-ethnic and multi-religion society, with Christianity and Islam as the two predominant religions. As of today in Nigeria, sexual violence prevention has been canvassed in many churches and mosques [3, 45]. For example, the Project Zero Tolerance of a Non-governmental Organization, 'Girl Pride Circle' focused on Christians and Muslim leaders by organizing workshops to raise awareness and encourage open discussion on sexual violence prevention in their communities [46]. Also, the Masculinity, Faith and Peace (MFP) program which evaluated a faith-based, norms-shifting approach-in Plateau state, Nigeria revealed a reduction in IPV reporting experience among Christian and Muslim women [47]. Some of these interventions might have explained why the proportion of Christians and Muslim students who reported sexual violence were fewer than the traditionalists and those belonging to other religious groups. The findings from this study are indications that attention should be paid to the minority students who

belong to other religious sects aside Christianity and Islam.

Furthermore, our study supported the assertion that age is associated with reporting of sexual harassment which has been linked to their young age and immaturity [48]. Similarly, students in their first year are known to be of lesser age compared to students in higher levels as a result of lower age of admission which is currently causing controversy in Nigeria among educational stakeholders [49]. Therefore, it can then be inferred from this study that, the higher odds of first-year students reporting sexual violence more than the students in other academic levels can be linked to their age bracket. This is also documented in the study of Konlan and Dangah that the academic level of students is associated with being sexually harassed [50]. We are of the opinion that the first-year students should receive special attention when sexual violence programmes are implemented than students in other academic levels. This will give them the boldness to resist any act of violence meted out to them, as documented by Ogunfowokan et al. [32]

Over the years, empirical findings on sexual violence have generally focused on the totality of students in higher institutions. Our findings have been able to show that the proportion of students in the Arts and Humanities-related programmes who reported sexual violence were more than the students in other programmes. Although we do not know why a higher proportion of students in such programmes reported sexual violence, we are recommending more studies in these programmes to unravel more information on the risk factors and circumstances surrounding sexual violence occurrence in such programmes. We are also suggesting faculty-specific interventions (e.g. Faculty of Pharmacy, Faculty of Science, Faculty of Law, e.t.c.) for sexual violence prevention on higher education campuses. This will allow for sexual violence intervention programmes that will put into consideration the peculiarities of different students in different academic programmes.

Furthermore, in 2019, the study of Onayase [51] on prevalence of sexual harassment among female students of universities, polytechnics and colleges of education in Taraba State, Nigeria showed that there was no significant difference in the prevalence of sexual harassment among the students across the institutions. However, our study differs from this report as the proportion of students in the colleges of education and polytechnics that reported sexual violence (rape, attempted rape and sexual harassment) were more than those in the universities and this difference was significant. This might be attributed to increased reporting among university students using social media platforms [14], and the development of sexual violence prevention policies in some of the universities. It is important for stakeholders in

sexual violence prevention in Nigeria to realise that students in other higher education institutions such as the polytechnics and colleges of education, as found in this study, report sexual violence more than university students. Exploring these institutions in the areas of sexual violence victimization, and mounting up sexual violence programmes and research in these institutions are paramount to reducing sexual violence in higher educational institutions.

Moreover, our study has also shown that the proportion of students from the Northeast and Southeast regions of the country that reported sexual violence were more than those from other regions. We also reported from our previous studies that students who are from Igbo ethnic group and are usually from the Southeastern part of the country reported sexual violence victimization more than students from other ethnic groups [32]. Although increased religious and ethnic violence in these regions (Northeast and Southeast) [52] may have accounted for the higher odds of sexual violence reported by the students in this study. However, it is still essential to pay more attention to these groups of students. This is because, youths that experience community violence are at increased risk of developing depressive symptoms and behavioral and emotional problems [53, 54]. The study by Wood et al. reported that Latin students and students with an ethnicity other than white reported less victimisation [11]. In essence, ethnicity, race, clan, or tribe as diverse students' characteristics that sexual violence programmers can consider in their programming.

#### Limitations

The problem of insecurity, especially in the northern part of the country, prevented data collection from two institutions. The University of Jos was replaced with the Federal University of Technology Minna, Niger State, while Waziri Umaru Federal Polytechnic, Bernin Kebbi, was replaced with Hussaini Adamu Federal Polytechnic, Kazaure, Jigawa State. The study was conducted in government-owned schools, while higher institutions owned by private individuals and organisations were not captured in this study. Other higher institutions, like diploma schools of nursing, technical schools, and specialised higher education schools, among others, were also not captured in the study. Hence, generalisations of the findings from this study should only be for public universities, polytechnics, and colleges of education students.

#### Conclusion

The characteristics of higher education students who report sexual violence are important in sexual violence programming and research. Higher education students in the universities, polytechnics and colleges of education

in Nigeria who are females, belonging to other religious groups aside from Christianity and Islam, first-year students, those in the faculties of arts and humanities, and those from the Southeast and Northeast regions reported sexual violence more than other groups of students. Also, the students in polytechnics and colleges of education reported sexual violence more than those in the universities. It is recommended that stakeholders in sexual violence prevention and research should pay more attention to specific characteristics of students in higher educational institutions for their interventions. This will ensure that interventions are tailored towards targeting students that are more vulnerable to sexual violence victimization thereby, reducing its occurrence in the population.

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#### Author contributions

AAO – Design, funding acquisition, project management, data collection, manuscript writing PES - Funding acquisition, data collection, manuscript writing OA – Data analysis, manuscript writing MIO - Data collection, manuscript writing ORS - Data collection, manuscript writing SNG - Funding acquisition, data collection MAO - Funding acquisition, data collection GAA - Funding acquisition, data collection AGA – Analysis, manuscript writing AT - Design, funding acquisition, data collection.

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#### Data availability

The data set for this study are available under the terms of the Creative Commons Attribution 4.0 International license (CC-BY 4.0) at Zenodo repository: Sexual Violence Whistleblowing Intention by Higher Education Students and Staff (<https://zenodo.org/records/10019951>).

#### Declarations

##### Ethics approval and consent to participate

Institutional board approval was obtained from the Institute of Public Health, Health Research and Ethics Committee (IPH HREC) of the Obafemi Awolowo University. The approval number is IPH/OAU/12/1460. Written informed consent of the students was obtained using the informed consent form formatted after the IPH HREC form. The minimum age of the students was 16 years hence, parental implied informed consent was obtained from those between 16 and 17 years because the adult age in Nigeria is 18 years. A written permission to collect data was also obtained from the administrators of the respective study institutions.

##### Consent for publication

Not applicable.

##### Competing interests

The authors declare no competing interests.

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