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Knowledge and Perceived Effects of the COVID-19 lockdown on HIV Prevention amongst Students at Enugu State University of Science and Technology, Nigeria

Nwangwu, Chukwunwike Nnanna
Ayuk, Clara Oben
Eze, Ifeoma Louisa

Department of Sociology and Anthropology,
Enugu State University of Science and Technology
Corresponding author: *chukscnn@gmail.com*

Abstract

COVID-19 lockdown tremendously affected healthcare delivery services globally and HIV prevention programmes, particularly in developing nations like Nigeria. In Enugu state, an HIV prevalence rate of 2.0% was recorded in 2019, shortly before the outbreak of the COVID-19 pandemic in 2020. Although data for 2021 HIV prevalence in the state appears unavailable, studies have shown that the COVID-19 lockdown disrupted HIV prevention programs and slowed down HIV testing to 41% in 2020, which tends to suggest that HIV prevention programs in Nigeria may have been affected by COVID-19 pandemic. It is noteworthy that while many studies on the effects of COVID 19 pandemic in Nigeria's higher education institutions focused more on academic activities, little is known about the knowledge and perceived effects of COVID-19 lockdown on HIV disease prevention by students in a tertiary educational institution in Enugu state, Nigeria. This study employed a cross-sectional survey research design. A structured online questionnaire was used to collect data from 343 students in ESUT. Convenience sampling techniques were used to select the respondents. The Statistical Package for Social Sciences (SPSS) 20.0 was used to process the data collected. The data was presented, analyzed, and interpreted using descriptive statistical tools. The results revealed that most students have partial knowledge of HIV prevention. Students perceived that COVID-19 lockdown increased sexual-based violence and limited access to sexual/reproductive health services. Urgent and strategic need for actions by relevant authorities to overcome the potential consequences of the obstructed HIV prevention programs during the pandemic as perceived by students of tertiary institutions in Enugu state, Nigeria.

Keywords: COVID 19, HIV Prevention, Knowledge, Effects, University Students

Introduction

The World Health Organization declared the COVID 19 outbreak a public health emergency of International Concern on 30th January 2020, and a pandemic on 11th March 2020 (WHO, 2020). Globally, the total number of confirmed cases of COVID 19 is 585,950,085 while the total number of confirmed deaths is 6,425,422 (WHO, 2022). In Nigeria, there are 262,402 confirmed cases and 3,147 deaths (Nigeria Centre for Disease Control, 2022).

The COVID-19 pandemic has suddenly and deeply changed our lives in a way comparable with the most traumatic events in history, such as the World war (Pileggi, 2021). With millions

of people infected around the World and already thousands of deaths, there is still a great uncertainty on the actual evolution of the crisis, as well as on the possible post-crisis scenarios, which depend on a number of key variables and factors. One of the visible effects on COVID 19 can be seen in the area of health related issues like HIV/AIDS. The COVID-19 pandemic threatens decades of hard-won development and public health gains, including improvements in HIV/AIDS prevention as demonstrated by the 52% and 38% decline in the number of children and adolescents newly infected with HIV/AIDSs, respectively, since 2010 (UNICEF, 2021). Also, the pandemic and the measures put into place to contain its spread, resulted in a sharp economic downturn, which in turn has had negative impacts on people's livelihoods and well-being (OECD, 2020). Evidence suggests COVID-19 has exacerbated the inequality that already existed, with the most vulnerable, marginalized and stigmatized being left behind (OECD, 2020). Consequently, the pandemic has brought to the forefront the vulnerabilities that have long been recognized as the structural drivers of the transmission of health related problems such as HIV/AIDS (UNAIDS, 2020).

Furthermore, one of the institutions that is greatly affected by COVID 19 is educational institutions (Nwangwu et al., 2021). At the end of March 2020, about 89% of students worldwide were not attending school because of COVID-19 closures and this represents 1.54 billion children and youth enrolled in school or university, including nearly 743 million girls (UNESCO, 2020). Researchers have documented that young persons are perhaps, the most vulnerable to HIV/AIDS owing to their sexually active nature, and quest to engage in sexual escapades and experimentation (Aboki, et al, 2014). The upsurge in HIV cases among students is a matter of particular concern in Asia (Li, et al., 2019). Also in China, the number of newly diagnosed cases of HIV infection among college students in 2017 (3077 cases) was more than tenfold greater than that in 2006 (242 cases), with an annual increase ranging from 30 to 50% over that period (Li et al, 2019). Over four-fifths of unmarried young people (15–24) in Nigeria engaged in at least one risky sexual behaviour in each survey year (Adedini et al., 2021). The vulnerability of students who are constantly exposed to HIV due to the prevailing sexual behaviour among them may have been deepened because of the effects of COVID 19 disruption preventive services of HIV/AIDS.

HIV infection is preventable and many international/national organizations have continued to labour toward HIV elimination. United Nations Programme on HIV/AIDS (2014) launched the 95-95-95 targets which aim to diagnose 95% of all HIV-positive individuals, provide

antiretroviral therapy (ART) for 95% of those diagnosed and achieve viral suppression for 95% of those treated by 2030. The Global Fund to Fight AIDS, Tuberculosis and Malaria reported a 41% reduction in HIV testing between April and September 2020 from 502 health facilities across 32 countries in Africa and Asia (Global Fund, 2022). In Nigeria, a recent study showed that actual HIV services outcomes were below the projected estimated target in the months most affected by COVID 19 lockdown and restrictions (Katbi et al, 2021). According to NACA (2021) national HIV prevention efforts are geared towards reducing the risk of HIV transmission acquired through high-risk sexual behaviours, unsafe blood and blood products, use of non-sterile needles in people who inject drugs, mother-to-child transmission, increase condom and availability/accessibility Pre-exposure prophylaxis (PrEP). However, before the COVID-19 pandemic, there was effective prevention in the management of HIV/AIDS in our society, but since the COVID-19 pandemic started, HIV/AIDS prevention programmes have been interrupted, treatment access has slowed down and research shows that people living with HIV are at higher risks from COVID-19 (UNAIDS, 2020).

The COVID-19 crisis may have amplified the deep inequalities and vulnerabilities that structurally drive the HIV epidemic (Iversen, et al., 2022). The effects of the COVID-19 pandemic on HIV/AIDS prevention are many and they affect individuals/organizations and the society at large. According to a recent study by Shi, Tang, Hu, Qiu, Marley, Liu, & Fu (2021) some of the effects of COVID 19 pandemic on HIV/AIDS prevention showed that people living with HIV experience more severe outcome and have higher complications from COVID-19. HIV prevention services may have been disrupted, and supply chains for key prevention commodities, including condoms, lubricants and antiretroviral and other medicines, seemed to have been stretched (UNAIDS, 2020).

Therefore, the likelihood of an increase in HIV/AIDS cases among young people of university age due to COVID 19 related issues may pose as one of the major challenges in the overall HIV/AIDS prevention strategy for Nigeria. The emergence of COVID 19 may have further contributed to higher incidence and mortality rates from HIV/AIDS related causes among this vulnerable group as a result of the obstacles to prevention posed by COVID 19 pandemic. However, not many studies have been done to assess the effects of the COVID 19 pandemic on HIV prevention among undergraduate students in Nigeria. Many studies on the impact of COVID 19 on higher institutions in Nigeria focused mainly on academic-related activities not on health issues such as HIV/AIDS prevention. However, little is known about knowledge and

perceived effects of COVID-19 lockdown on HIV disease prevention by students in tertiary educational institutions in Enugu state, Nigeria. Thus, this study investigated the knowledge and perceived effects of the COVID-19 lockdown on HIV prevention among students in Enugu State University of Science and Technology, Nigeria.

Method

This study employed a cross-sectional survey research design. The design was suitable for the study because it provided the techniques to collect data from selected undergraduate students in ESUT at a particular point in time. The findings were generalized to the target population. The study was conducted at Enugu State University of Science and Technology (ESUT).

The population of the study comprised of 18,702 undergraduate students who were present at the time of the study at ESUT (ESUT Academic Planning Unit, 2021). A total of 343 students were selected using the Taro Yamane formula for sample size determination. This formula provided simplistic steps for determining the appropriate sample size for a finite (known) population, using a 95% confidence level and a 5% margin of error.

The study adopted an online convenient sampling technique. The online google form questionnaire was distributed on ESUT undergraduate students' WhatsApp forums. The researcher monitored the responses from his back office until the required correctly filled number of questionnaires was gotten and thereafter the online entry was closed. The online data collection period was from July 2021 –August 2021. The data collection instrument was faced valued corrected by professors in the sociology department and pre-tested in other students' social media platforms to validate its efficiency and effectiveness in answering the research objectives. The necessary adjustments were made before sharing it among selected respondents. Verbal and written consent were gotten from the respondents that participated in the study. They were also informed that, at any point in the study, if they were no longer comfortable, they were free to withdraw. The participants voluntarily participated and their confidentiality was maintained in line with ethical standards.

The Statistical Package for Social Sciences (SPSS) 20.0 was used to process the data collected with the online questionnaire. The questionnaire data obtained was presented, analyzed, and interpreted using descriptive statistical tools such as simple percentages in tables and bar charts.

Results

Socio-demographic characteristics of the respondents

The results showed that a majority of the respondents 54.8% were females while 45.2% of them were males. On the academic level of students, the finding showed that a majority of the respondents (61.3%) were in their fourth year of study while only 11.9% were in their first year of study. The results showed that overwhelmed the majority of respondents 73.3% were in the age range of 21 to 26 years while the least 2% were between 33 years and above. The distribution of the respondents by marital status showed that a majority of the respondents 95.5% were single while 3.3% were married and 0.8% were cohabiting. This result is expected among undergraduate students. On religious affiliation, the result showed that a majority of the respondents 62.1% were Catholic, this is followed by 20.6% who were Pentecostal while 14.4% were Protestants. African traditional religion is the least represented with only 2.7% of the total respondents in this study. This agrees with general expectations because majority of Christians in Nigeria are from South east Nigeria. On respondents' family economic background, the findings showed that the middle class is the most represented with 80.2% while 10.3% were from low income background and only 9.5% indicated upper class economic background. Finally, the results showed that 42% of the students currently live with their biological parents while only 1.6% live with foster parents

Substantive Issues

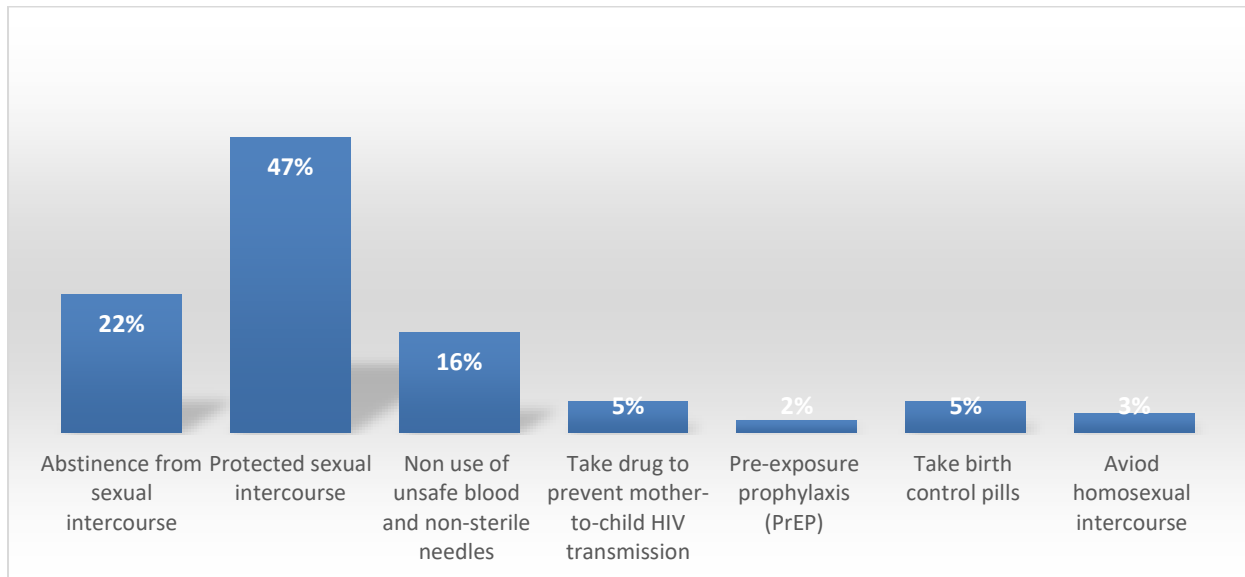
Knowledge of HIV Prevention

Table 1: Distribution of respondents on knowledge of HV prevention

Knowledge of HIV prevention	Frequency	Percentage
Yes	304	89%
No	50	12.7%
Total	343	100%

Source: Online Survey, 2021

Table 1 revealed that a majority 89% of the respondents indicated that they have knowledge of HIV prevention while 12.7% said that they do not. More questions were posed to the students on how HIV can be prevented in order to ascertain their level of knowledge, the responses are showed in the fig 1 below



Source: Online Survey, 2021 Fig 1: Respondents views of how HIV can be prevention

Fig 1 showed that a majority of 47% of the respondents indicated protected sexual intercourse as how HIV can be prevented. This is followed by 22% that indicated abstinence from sexual intercourse. Only 5% choose the wrong answer of taking birth control pills as part of the ways HIV can be prevented. However, only 2% indicated that pre-exposure prophylaxis (PrEP) and 3% choose to avoid homosexual intercourse as part of ways to prevent HIV respectively. The implication of this finding may be that students have partial knowledge of HIV prevention because they were less familiar with the use of pre-exposure prophylaxis (PrEP) and avoiding men having sex with men as ways to prevent HIV.

Effects Covid 19 Lockdown on HIV Prevention

Table: 2: Distribution of respondents on whether COVID 19 Lockdown affected HIV prevention

Response	Frequency	Percentage
Yes	315	92%
No	28	8%
Total	343	100%

Source: Online Survey, 2021

Table 2 showed a vast majority of the respondents 92% affirmed that COVID 19 lockdown affected HIV prevention while only 8% disagreed. Follow up questions were asked to ascertain how COVID 19 lockdown affected HIV prevention. The responses are shown in the tables below

Table 3: Distribution of respondents on whether it was hard for students to access HIV counselling and testing during COVID19 lockdown

Response	Frequency	Percentage
Yes, hard	127	37%
Somewhat hard	79	23%
No, not hard	58	16.9%
Don't remember	79	23%
Total	343	100%

Source: Online Survey, 2021

Table 3 showed that (37%) of respondents were affirmative that it was hard for students to access HIV counselling and testing during COVID19 while (17%) of respondents said that it was not hard for students to access HIV counselling during COVID19. However, a large proportion (23%) of the respondents indicates that they could not remember if it was hard or not. The implication is that although many students could not access HIV counselling and testing during the COVID 19 lockdown, a large number appear to lesser fare attitude towards HIV counselling and testing. Furthermore, questions on whether COVID 19 lockdown increased the likelihood of risky sexual behaviour among students. The responses are shown below:

Table 4: Distribution of respondents on how likely COVID19 lockdown increase student's vulnerability to risky sexual behaviour

Responses	Frequency	Percentage
Not at all likely	61	17.7%
A little likely	121	35.4%
Somewhat likely	59	17.3%
Very likely	102	29.6%
Total	343	100%

Source: Online Survey, 2021

The results from table 4 showed that overwhelming majority 82.3% were positive that COVID 19 lockdown increased the likelihood of risky sexual behaviour among students while 17.7% gave negative responses. Also, more questions were posed on how COVID 19 lockdown increased the vulnerability of students to HIV infections. The responses are shown in the table below:

Table 5: Distribution of respondents on whether students were exposed to unprotected sexual intercourse during the COVID 19 lockdown

Response	Frequency	Percentage
Yes	147	42.8%
No	167	48.6%
I don't know	29	8.6%
Total	343	100%

Source: Online Survey, 2021

Table 5 showed that 49% of the students perceived that students were not exposed more to unprotected sexual intercourse during the COVID 19 lockdown while 43% believed that students were exposed however, 9% were indifferent. Due to a majority did not perceive to be exposed to unprotected sexual intercourse, the study also implies that almost half of the students studied during which COVID 19 lockdown were made vulnerable to unprotected sexual relations. Also, question on whether COVID 19 lockdown exacerbated gender/sexual based violence on the students. The responses are shown in the table below

Table 6: Distribution of respondents on whether students were exposed to gender/sexual based violence during the COVID 19 lockdown

Response	Frequency	Percentage
Yes	258	75.2%
No	56	16.3%
I don't know	29	8.4%
Total	343	100%

Source: Online Survey, 2021

Results from table 6 showed that an overwhelming majority 75.2% affirmed that COVID 19 lockdown exacerbated gender/sexual based violence on students while 16.3% said no; only 8.4% do not have an idea about that. In addition, questions were asked to ascertain among the identified factors which one mostly increased the vulnerability of students to HIV infections during the COVID 19 lockdown

Table 7: Distribution of respondents on which of the following mostly increased the vulnerability of students to HIV infections during the COVID 19 lockdown

Responses	Frequency	Percentages
Increased gender/sexual based violence	105	30.5%
Increased unwanted pregnancy	25	7.4%
Increased STI's	62	18.1%
Limited access to condom	76	22.2%
Interrupted access to youth friendly HIV services	75	21.8%
Total	343	100%

Source: Online Survey, 2021

Table 7 showed that a majority (30.5%) of the respondents responded that increased gender/sexual based violence mostly increased the vulnerability of students to HIV infections during the COVID 19 lockdown. This is closely followed by (22.2%) who indicated limited access to condoms while (21.2%) said that it interrupted access to youth friendly HIV services.

The implication of this finding may be because gender based violence such as rape increased spontaneously during the COVID 19 lockdown.

Way Forward

Table 8: Distribution of respondents on whether they have attended any HIV prevention exercise after the COVID 19 lockdown

Responses	Frequency	Percentage
Yes	118	34.2%
No	207	60.1%
I don't know	18	5.7%
Total	343	100%

Source: Online Survey, 2021

From table 8, a majority 60.1% of respondents said that they have not attended any HIV prevention exercise after the COVID 19 lockdown while 34.2% respondents indicated they have attended. The respondents were further asked about ways to reduce the effects of the COVID 19 lockdown on HIV prevention. The results are shown in the table below

Table 9: Distribution of respondents on ways to reduce the effects COVID 19 on HIV prevention

Response	Frequency	Percentage
Create more awareness of HIV prevention on campus	238	69.5%
Provide youth friendly HIV services	41	11.9%
Make laws to strengthen HIV prevention	19	5.4%
Implement more HIV preventive interventions	45	13.2%
Total	343	100%

Source: Online Survey, 2021

Table 9 showed that a majority of the respondents 69.5% respondents indicated creating more awareness of HIV prevention on campus while 13.2% of respondents suggested implementing more HIV preventive interventions. Also, more than 10% said providing youth-friendly HIV services.

Discussion

The study revealed that the majority of the respondents have partial knowledge of HIV prevention. This is closely in agreement with a study done to assess the level of knowledge on

HIV/AIDS and its risk factors and attitude towards HIV/AIDS among 400 university students in Xinjiang (Maimaiti, et al, 2010). Also, a similar study conducted in Ghana showed that the majority of the respondents 312 (96.3%) were able to correctly identify one or more modes of HIV of transmission (Oppong, & Oti-Boadi, 2013). However, the study discovered that the level of knowledge of many students on some aspects of HIV prevention such as the use of Pre-exposure prophylaxis (PrEP) was limited. This finding is in agreement with another study conducted on knowledge, awareness and willingness to use HIV Pre-Exposure Prophylaxis (PrEP) among students at the University of Namibia which concluded that knowledge and use of PrEP were low (Nakathingo et al, 2021). PrEP, or pre-exposure prophylaxis, is medicine people at risk for HIV take to prevent getting HIV from sex or injection drug use (Centers for Disease Control and Prevention, 2022). PrEP reduces the risk of getting HIV from sex by about 99% and reduces the risk of getting HIV from injection drug use by at least 74% (Centers for Disease Control and Prevention, 2022). The implication of this finding is that gains that would have been made in HIV prevention through the use of Pre-Exposure Prophylaxis (PrEP) medicine among these vulnerable population is lost because they have partial knowledge of HIV prevention.

Also, the study found that COVID 19 lockdown made it hard for students to access HIV counselling and testing. Globally, COVID 19 related disruption affected service delivery in almost all sectors. There seems to be a scarcity of studies on HIV testing coverage among university students during and after COVID 19 lockdown however, a recent technical report by WHO (2021) across some countries in Africa on the impact of COVID 19 on HIV testing revealed that between April and June 2020, HIV testing volumes decreased by 22.3%, 49.9% and 34.8% in Zambia, South Africa and Malawi, respectively when compared to reporting between January and March 2020. In addition, the Global Fund (2022) report showed that HIV testing fall by 41% between April and September 2020 from 502 health facilities across 32 countries in Africa and Asia. In Nigeria, less than a quarter of the Adolescents and Young Adults (AYA) 23.7% had ever tested for HIV and this was an indication that HIV testing coverage among AYA in Nigeria is well below the national target of 95% indicated in the national HIV/AIDS strategic framework (2017–2021) (Ajayi, 2020). This implies that the negative attitude of youth-in-school towards HIV counselling and testing; may have been exacerbated by the COVID 19 disruption on HIV services could have affected the low figure of new infections in Nigeria.

Furthermore, the findings showed that many of the respondents perceived that COVID 19 lockdown increased students' vulnerability to risky sexual behaviour. Further interrogation on the nature of vulnerability to risky sexual behaviour revealed that the majority of the respondents have the perception that students were likely to be exposed to unprotected sexual intercourse and gender/sexual based violence during the COVID 19 lockdown. This among other things may be because the preventive practices of some people who were sexually active during the lockdowns were focused on preventing COVID-19, while the risk of STIs such as HIV was downplayed (Okeke et al, 2021). The finding is in consonance with some recent studies. A study in the UK among young people revealed that COVID 19 disrupted access and use of condoms which affected sexual risk-taking and preventive practices, unmet need for sexually transmitted infection (STI) testing, and switch from freely provided to commercially sold condoms practice (Lewis et al, 2021). In a related study among Australian heterosexual young adults, the result showed that during COVID 19 restrictions there was a general decline in condom use and this decrease was more pronounced among single people (Dacosta et al, 2021). On the other hand, studies have shown that COVID 19 also exacerbated the incidence of gender and sexual based violence especially among young girls (United Nations Population Fund, 2020; Mutongwiza, 2020). Studies in South Africa and Nigeria among students revealed that emotional or verbal violence and sexual violence were prevalent during COVID 19 (Udigwe et al, 2021; Mutinta, 2022). The implication of these findings is that since both lack of access of condoms and gender/sexual violence are independent risk factors for HIV infection, there may have been escalated by COVID 19 which requires urgent attention in order not to lose the gains from previous interventions.

Conclusion

It is a fact that COVID 19 has disrupted HIV services including prevention and exacerbated the vulnerability of students to HIV infection. The global mandate to eliminate HIV infection by 2030 may remain a mirage especially in a developing country like Nigeria. Hence, the urgent and strategic need for actions by relevant authorities to overcome the potential consequences of the obstructed HIV prevention programs during the pandemic as perceived by students of tertiary institutions in Enugu state, Nigeria. need to be prioritized.

Recommendations

- There is a need to intensify efforts toward youth-friendly sensitization on HIV combination prevention services in tertiary institutions in Enugu State.
- Relevant stakeholders at all levels need to re-strategize to upscale HIV counselling and testing activities in tertiary institutions in Enugu State.
- Condom campaigns and distribution in the universities need to be strengthened in order to make up for the shortfall during COVID 19.
- There is a need to safeguard the mental health of students by enhancing the psychosocial support system for victims of gender/sexual based violence in the universities.

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