Original Research Article

Compliance with COVID-19 prevention and risky sexual behaviour among youths during the COVID-19 pandemic in Osun state, Nigeria

Abstract

Introduction

COVID -19 hit at the peak of 2020 in Nigeria and brought about the implementation of measures such as bounds, social distancing, and lockdown to curb the spread of the ravaging virus. Risky sexual behaviour (RSB) remained a major predictor of sexually transmitted Infections including HIV. Understanding the changing pattern of sexual behaviour may give some insight into the pathological behaviour, so that possible remediation measures can be taken, putting into consideration young people. We determined the rate of RSB, level of compliance to COVID-19 preventive measures and identified the factors influencing RSB among youths during COVID-19 pandemic.

Methods

A cross-sectional study carried out among youths aged 15 to 24 years (n=421) in Osogbo, Osun state. Demographic information, history of sexual activities, compliance to COVID-19 preventive measures were captured using an electronic data collection tool (Kobo toolbox). The outcome variable was RSB (having multiple sexual partners, inconsistent condom-use with casual sexual partners, alcohol, and drug use for sexual practices). Descriptive statistics were presented with frequency and percentage. Test of association (chi square) and binary logistic regression were done using Stata MP 16.

Results

There were 229(54.4%) males in this study, 2.1% had poor health rating, and all the respondents 421(100%) reported having heard about COVID-19. Only 24(5.7%) had high compliance, 204(48.5%) had moderate, 168(39.9%) had low compliance, 25 (5.9%) had no form of compliance to COVID-19 prevention measures. There was a high (20.7%) level of RSB among youths. Age 20-24 years (AOR= 7.23, 95%CI: 2.57-20.33) and good health rating (AOR=2.48, 95%CI: 1.16–5.31) were associated with the likelihood of RSB. Also, Muslims (AOR= 0.26, P=0.020, 95%CI: 0.09-0.81), Yoruba ethnic group (AOR=0.31, 95%CI:0.11–0.89), Youths who have attained Secondary education (AOR=0.13, 95%CI: 0.04-0.40) and tertiary education (AOR:0.14, P=0.001, 95%CI: 0.04-0.45) were less likely to practice RSB.

Conclusion

This study revealed a poor level of compliance with COVID-19 prevention and a high level of RSB among youths during the COVID-19 pandemic. Risk communication and education targeted at older youths (20 -24 years), religious gatherings, and youths having below

secondary education will be required in improving compliance and lowering RSB among youths.

Keywords: risky sexual behaviour, self-rated health, youths, COVID-19 pandemic
Word count: 360

Background

The COVID-19 pandemic has drastically altered lifestyles around the globe (Panarese & Azzarita, 2021; Sun et al., 2020). In Nigeria, COVID -19 hit at the peak of 2020 leaving everyone in a state of shock and dilemma, which brought about the implementation of stringent measures such as bounds, social distancing, and lockdown to curb the spread of this ravaging virus (Amzat et al., 2020). These restrictions put in place as affected livelihood causing behavioural change (Aylward & Liang, 2020). Sexual behaviour was not left out, as it was deeply affected by the outbreak (Li et al., 2020).

Sexual health is a state of physical, emotional, mental, and social wellbeing with all aspects of sexuality, not merely the absence of disease, dysfunction, or infirmity (Organization, 2006). Furthermore now, with strict restrictions observed globally because of the ongoing pandemic, a significant difference can occur in sexual behaviours. Therefore, a positive approach to sexuality should be identified as a role played by pleasurable sexual relationships, trust, and communication in the promotion of self-esteem and overall wellbeing (Starrs et al., 2018), as this cannot be overemphasized in the face of the pandemic. Although the negative impact of COVID-19 cannot be overlooked as it has caused a drastic change to human wellbeing, not leaving aside the impediment on sexual relationships (Li & Tang, 2020).

Regarding cohabitants, sexual intercourse was affected by the continuous presence of children in the home, given the closure of schools, with the difficulty of finding a moment of intimacy (Eleuteri & Terzitta, 2021). Also, for unmarried young people who are sexually active, it was damning to their emotions as they couldn't satisfy their sexual desires considering the virulence of the virus and several bands placed on movement, it was more devastating for partners who were trapped away from each other, due to the strict measures taken such as lockdown (Eleuteri & Terzitta, 2021). Sexuality is also influenced by the sense of desire for the other Psychological factors, specific mood states can obstruct sexual desire (Mieras, 2018; Nimbi et al., 2018). Depression and anxiety have been mostly linked with low levels of sexual desire of which was majorly attributed to the onset of COVID-19, leaving the whole World in uncertainty and dismay (Li & Tang, 2020; Sharma & Subramanyam, 2020).

But even in a society under survival mode, sexuality has a space, because it is a fundamental expression of the human experience (Ibarra et al., 2020). Considering the wave of the pandemic and all the attributed challenges, it's a more resourceful time to be mindful of our sexual health, which has proven benefits beyond pleasure. But we know that women's and men's sexual responses have different drivers and different response models, one more circular, female, and the other more linear. But the immediate effects in people's sex life, independently of their status or gender would be to try to keep safety over pleasure aside, from figuring out how to maintain social connection without breaking the guidelines. The

main issue here is about how to maintain a safe intimacy during and after pandemic times, keeping the adventure and pleasurable feelings at the same time alive (Ibarra et al., 2020).

Risky sexual behaviour as often measured by indicators such as early exposure to sex, unprotected sex (having sex with non-partner without condom), multiple sexual partners, commercial sex, injecting drugs before sexual activities, and age mixing between partners (Slaymaker, 2004). Studies have revealed that youths and adolescent engage in unhealthy sexual behaviours such as early age of sexual initiation, unsafe sex and multiple sexual partners (Aji et al., 2013).

A meta-analysis among developing countries showed an overall rate (75%) of risky sexual behaviour among youths and adolescents (Berhan & Berhan, 2015), and it was further reported that about 21 out of the 26 developing countries considered in this study had up 90% rate of risky sexual behaviour (Berhan & Berhan, 2015). Also, use of condom for sexual intercourse among youth was reported to be low (40% among age 15 – 19 years old and 51% among age group 20-24 years old) (Berhan & Berhan, 2015). Associated factors with risky sexual behaviour reported in this study were urban residency and high economic status (Berhan & Berhan, 2015).

A study among the adolescent in Nigeria reported curiosity, peer influence, pleasure and financial benefits as risk factors of unhealthy/ risky sexual behaviour (Aji et al., 2013). Also, among University students in Nigeria, the rate of risky sexual behaviour was high among the sexually active students and about one out of three students reported an experience of sexual coercion (Odufuye & Ajuwon, 2020). Further, a study explored the protective factors of risky sexual behaviour in Nigeria, although a higher proportion of risky sexual behaviour was reported in the study but the scholars showed that family support and living with both parents were protective against risky sexual behaviour (Ajayi & Okeke, 2019).

In the era of COVID-19 pandemic, lots of human activities were altered including sexual behaviour. However, we hypothesize that 1. The fear of contacting COVID-19 virus through risky sexual activities will reduce the chances of engaging in risky sexual activities. 2. On the other hand, the lock down and idleness due to the COVID-19 restriction measures would have reduced youths access to their sexual partner and could thereby contribute to the urge to satisfy their sexual desire and get involved in an unsafe/ unprotected sex. We have identified many gaps in the body of knowledge about the role COVID 19 pandemic played on risky sexual behaviour. Although, some studies have been conducted to assess the impact of COVID 19 pandemic on sexual and reproductive health in some countries, but there is paucity of information on the role COVID 19 played on sexual behaviour in Nigeria, especially among youths in Osun State.

Sex being a universal term, one would expect a great deal to be known about it. Incidentally, this is not the case, partly because all societies regulate sexual activities (ANOKE-OGBONNA, 2013).This control restricts both the observation of sexual behaviours and access to information about it which has invariably caused a paucity of data on this topic, this created the need for researchers to explore this topic considering the wave of COVID-19 which brought changes to lifestyles and peoples' view globally. Lockdown due to COVID-19 affects every aspect of daily life, is not clear how it affects the sexual habits of individuals' especially young people. As the COVID-19 pandemic is evolving rapidly, understanding the changing pattern of sexual behaviour may give some insight into the pathological behaviour,

so that possible re- mediation measures can be taken, putting into consideration young people. This study gave adequate information on the pattern of risky sexual behaviour amongst youth and the influencing factors of risky sexual behaviour among youths. Further, we determined the level of compliance to COVID-19 preventive measures and identified the factors influencing risky sexual behaviours among youths during the COVID-19 pandemic. This study contributed immensely to the body of knowledge and cover barriers in the paucity of information on this topic.

Materials and Methods

Study design and study population

This study was a cross-sectional study carried out among youths aged 15 to 24 years in Osogbo, Osun state. Osun state is the 19th most populous state having an estimated population of about 4.7 million as at 2016 (National Bureau of Statistics, 2016). Osun State is primarily inhabited by the Yoruba people, mainly of the Ibolo, Ife, Igbomina, Ijesha, and Oyo subgroups. Religiously, the majority of the state's population are Christian (55%), Muslim (40%) and traditionalist (5%) (National Bureau of Statistics, 2016).

Inclusion Criteria

Youths of age 15 to 24, willing to participate by providing inform consent and that has been living continually in Osogbo, Osun state Nigeria for the past two years

Exclusion Criteria

We excluded youths of age 15 to 24 who were unhealthy (physically or mentally) to participate in the study.

Sample size.

The Leslie Kish's formula for calculating sample size in single proportion for population greater than 10,000 was used to calculate the sample size for this study, n = $\frac{z^2\ p\ q}{d^2}$, Z= 1.96, p=0.52 according to a study that revealed a 0.52 proportion of risky sexual behaviour in Nigeria (Odufuye & Ajuwon, 2020), 1-p = 0.55 and n = $\frac{z^2_{1-\alpha}\ p\ (1-p)}{d^2}$ =, n=$\frac{1.96^2_{1-\alpha}\ 0.52\ (0.48)}{0.05^2}$= $0.9589/0.05^2 = 383$

After adjusting for 10% non-response rate n_a= ($(\frac{10}{100} x\ 383) + 383) = 421$ approximately.

Sampling technique

Youths aged 15 – 24 years in Osogbo were sampled, a multi-stage sampling technique was done to achieve the sampling.

Stage one: Due to the limited resources available to carry out this study, we randomly selected 1 (Olorunda local government) out of the 30 LGA in Osogbo, Osun state. Also, at **stage two:** we selected 5 out of the 11 wards in Olorunda local government using a simple random sampling technique utilizing the ballot method. From the selected wards, proportional allocation of sample size was done to determine the number of samples to be drawn from each selected ward in Olorunda local government area.

Stage three: In the selected wards households were randomly selected and all eligible and consenting youth aged 15-24 years in each selected house/household were recruited into the study and interviewed. A community guide was involved to ensure a smooth running of the sampling process.

Table 1 The sample size required in each ward in Olorunda local government is presented below.

Ward name	**Total population in each ward (N_x)**	**Proportional sample size ($N_x/N)xn_a$**
Ward 1: Agowande	101,000	200
Ward 4: Atelewo	45,000	89
Ward 5: Sabo	30,000	59
Ward 7: Abaku	26,500	52
Abaku 11: Ilie	10,500	21
Total	213,000	421

Data collection tools and Study Variables

A structured pretested questionnaire on Sexual health was administered to eligible participants. Data on demographic, socio-economic characteristics, history of sexual activities, COVID-19 compliance to COVID-19 preventive measures as well as information on sexual diseases were captured in the questionnaire. The questionnaire was setup in an electronic data collection tool (Kobo toolbox) and the research assistants made use of mobile phones to collect the data.

Measurement of Outcome variable

Respondents who have practiced at least one of the four indicators of risky sexual behaviour (having multiple sexual partners, and inconsistent condom usewith non-sexual partner, alcohol use for sexual intercourse, and drug use for their sexual practices) were considered positive for risky sexual behaviour while those who have not practice any were considered having healthy sexual behaviour.

Measurements of explanatory variables

Demographic information such as age, residential type, educational level, religion, ethnicity, occupation, income, partner's age and occupation were explored as explanatory variables. Also, COVID-19 knowledge, and compliance to COVID-19 preventive measures were considered as explanatory variables in this study.

Statistical Analysis

Collected data was exported from Kobo toolbox into Stata MP 16 in a password protected computer to ensure confidentiality of the information. Descriptive statistics were presented with frequency and percentage distribution. Test of association was carried out using chi

square and further analysis to explore influencing factors was done using binary logistic regression.

Ethical Approval

The ethical approval for the study was obtained from the Ethics Committee of Adeleke University, Ede Osun state. The study was explained to all eligible participants and informed consent was obtained from all consenting participants.

Results

Demographic characteristics of youths in Osogbo, Osun state

The results in table 2 presented the descriptives of the respondents' demographic characteristics. The mean age of the youths (15 – 24 years) who participated in this study was 21.1 ± 2.79 years, 107 (25.4%) were aged 15 – 19 years, and 214 (74.6%) were aged 20 – 24 years. There were 229 (54.4%) males. More than a half (219 (52.0%) of the youths were Christians. Majority 356 (84.6%) were singles, 54 (12.8%) were co-inhabiting with a partner, and 11 (2.6%) were divorced or separated. Most 335 (79.6%) of youths who participated in this study were Yoruba, 29 (6.9%) Hausa, 42 (10.0%) Igbo, and other ethnic groups (Igala, fulani) constituted 3.6%. Also, most 416 (98.8%) reside in the urban areas, while only 5 (1.2%) stay in the rural areas. About 189 (44.9%) of the respondents have attained tertiary level of education, 171 (40.6%) had secondary education, 2 (0.5%) had primary education, and 59 (14.0%) had no education. Only 7 (1.7%) were engaged in professional work, 152 (36.1%) were into skilled labor, 191 (45.4%) were students, 46 (10.9%) were into unskilled labor, while 25(5.9%) were doing nothing.

Table 2 Demographic characteristics of youths in Osogbo, Osun state

Variables	**Frequency**	**Percent**
Age Mean (SD)	21.1 (2.79)	min 15, max 24
15 - 19	107	25.4
20 -24	314	74.6
Gender		
Female	192	45.6
Male	229	54.4
Religion		
Christian	219	52.0
Muslim	162	38.5
Traditional	40	9.5
Marital status		
Divorced/Separated	11	2.6
Married/ Co-inhabiting with partner	54	12.8
Single	356	84.6
Ethnic group		
Hausa	29	6.9
Igbo	42	10.0
Others (Igala, fulani)	15	3.6

Yoruba	335	79.6
Type of residence		
Rural	5	1.2
Urban	416	98.8
Your highest level of education		
None	59	14.0
Primary	2	0.5
Secondary	171	40.6
Tertiary	189	44.9
Occupational status		
Professional (e.g. Doctors, Nurses, Teachers, Lawyers)	7	1.7
Skilled labor (e.g. Artisans, Drivers, Tailors, Hairdressers etc)	152	36.1
Students	191	45.4
Unemployed/ doing nothing	25	5.9
Unskilled labor (e.g. traders, farmers etc)	46	10.9

Health self-rating of youths in Osogbo, Osun state

The results in figure 1 showed the health self-rating of the youths who participated in this study. Close to a half (45.4%) of the participants reported having excellent health rating, slightly above half (52.5%) had good health rating and 2.1% had poor health rating.

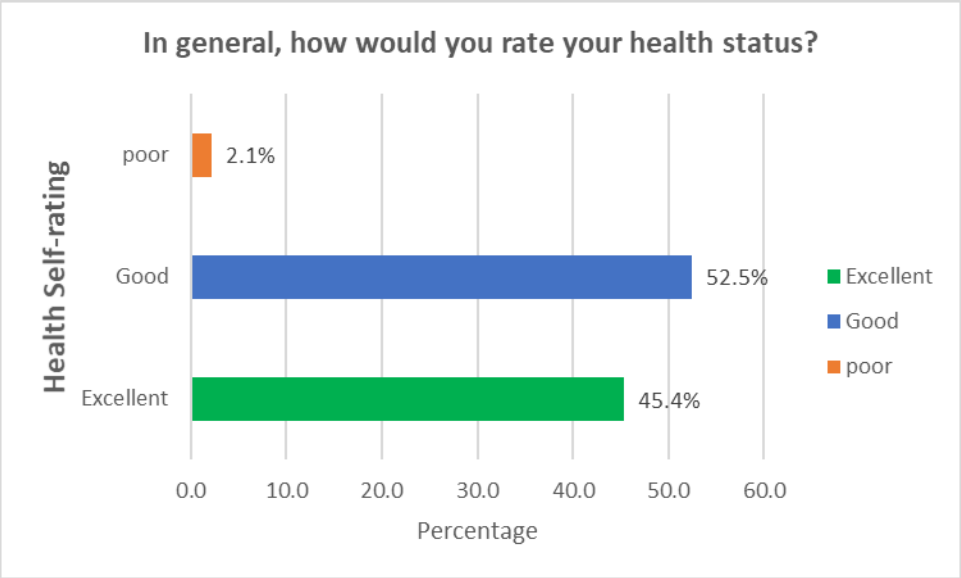

Figure 1: Health self-rating of youths in Osogbo, Osun state

Information about COVID-19 among youths in Osogbo, Osun state

Table 3 presents the respondents' information on COVID-19. All the respondents 421 (100%) reported that they have heard about COVID-19. Sources of information were Radio (48.7%); Television (48.9%); Newspaper (26.8%); Internet (26.6%); social media (74.8%); and religious gathering (7.6%). There were several perceptions reported about COVID-19, 335 (79.6%) reported admits that COVID-19 is real, some 78 (18.5%) said COVID-19 is a propaganda, 16(3.8%) of the youths said there are local herbal treatments for COVID-19, 50

(11.9%) said COVID-19 only affected the rich, and 39 (9.3%) said it only affected those who travel abroad.

Table 3 Information about COVID-19 among youths in Osogbo Osun state

Variables	Frequency (n=421)	Percent (%)
Have you heard about COVID-19?		
Yes	421	100.0
Sources of Information (multiple choice)		
Radio	205	48.7
Television	206	48.9
Newspaper	113	26.8
Internet	112	26.6
Social Media	315	74.8
Religious gathering	32	7.6
Perception about COVID-19 (multiple choice)		
COVID-19 is real	335	79.6
COVID-19 is a propaganda	78	18.5
There are local herbal treatments for COVID-19	16	3.8
COVID-19 only affect rich people	50	11.9
COVID-19 only affect those who travel abroad	39	9.3

Compliance to COVID-19 preventive measures among youths in Osogbo, Osun state

As presented in table 4, only 24 (5.7%) had high compliance to COVID-19 preventive measures, 168 (39.9%) had low compliance, 204 (48.5%) had moderate compliance and 25 (5.9%) had no form of compliance to COVID-19 preventive measures. COVID-testing was poor among the youths, only 68 (16.2%) have ever tested for COVID-19 among the youths who participated in this study, among which 3(4.4) tested positive for COVID-19. About 21 (5.0%) have had contact with someone with COVID-19 disease. Close to a half 199 (47.3%) of the youths have received the COVID-19 vaccine.

Table 4 Compliance to COVID-19 preventive measures among youths in Osogbo, Osun state

Variables	Frequency (n=421)	Percent (%)
To what extent do you observe the COVID-19 preventive measures (Use of Nose mask, use of sanitizer, avoiding social gathering)		
High	24	5.7
Low	168	39.9
Moderate	204	48.5
None	25	5.9
Have you ever tested for COVID-19?		
No	353	83.8
Yes	68	16.2

If you ever tested for COVID-19, what was the result? (n=68)		
Negative	65	95.6
Positive	3	4.4
Have you ever had contact with a person with COVID-19 disease?		
No	400	95.0
Yes	21	5.0
Have you received the COVID-19 vaccine?		
No	222	52.7
Yes	199	47.3

Risky Sexual behaviour among youths in Osogbo, Osun state

Figure 2 revealed that 87 (20.7%) were engaged in risky sexual behaviour (during the COVID-19 pandemic.

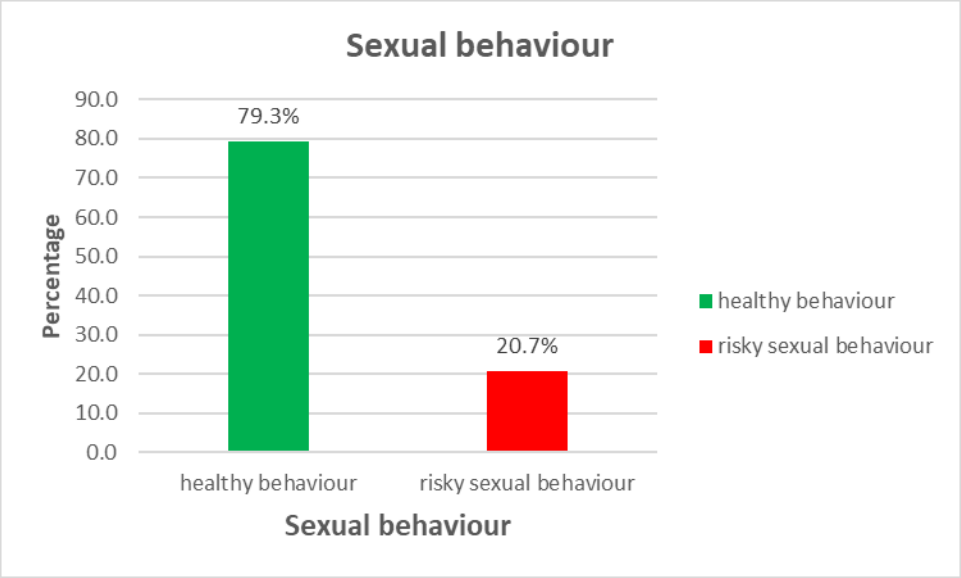

Figure 2: Sexual behaviour

Association between risky sexual behaviour and respondents' demographic characteristics

Table 5 presents the association between risky sexual behaviour and respondents' demographic characteristics. Risky sexual behaviour was more pronounced among age group 20 -24 years (23.2%) compared to age group 15-19 years (13.1%), P= 0.025. Similarly, more males (29.3%) engage in risky sexual behaviour compared to female (10.4%), P=0.000. The proportion of traditional religious youths (65.0%) who practice risky sexual behaviour was higher compared to Christians (16.0%) and Muslims (16.0%), P=0.000. Higher proportion of divorced/separated youths (90.9%) engage in risky sexual behaviour compared to married/co-habiting youths (44.4%) and single youths (14.9%), P=0.000. Risky sexual behaviour was more common among Igbo (61.9%) as compared to Hausa (44.8%) and Yoruba (11.6%), P= 0.000. Also, higher proportion (66.1%) of uneducated youths practice risky sexual behaviour

in relative to tertiary education (17.5%), secondary education (8.8%) and primary education (0.0%), P=0.000. Pattern of risky sexual behaviour among occupation status of the respondents were: Professional (57.1%); Skilled labor (14.5%); Students (14.7%); unskilled labor (56.5%); and unemployed (28.0%), P=0.000. Risky sexual behaviour was more common among youths who had good health rating (29.4%) compared to those who had excellent health rating (11.5%) and poor health rating (0.0%), P=0.000. Similarly, risky sexual behaviour was more among those (44.0%) who didn't comply with COVID-19 preventive measures compared to those who had moderate compliance (20.1%), low compliance (15.5%) and high compliance (37.5%), P=0.002. We also found that risky sexual behaviour was more among youth who have tested for COVID-19 (35.3%) compared to those who have not (17.8%), P=0.001. In the same vein, more of those (61.9%) who engaged in risky sexual behaviour had contact with someone with COVID-19 compared to those (18.5%) who do not have contact with someone with COVID-19, P=0.000. Risky sexual behaviour was comparable among those (21.6%) who have received COVID-19 vaccine compared to those who haven't (19.8%), P=0.651.

Table 5 Association between risky sexual behaviour and respondents' demographic characteristics

	Sexual behaviour			
Variable	**Healthy behaviour**	**Risky sexual behaviour**	**Chi-square/ fishers**	**P Value**
Age group			5.03	0.025
15 – 19	93(86.9)	14(13.1)		
20 -24	241(76.8)	73(23.2)		
Gender			22.61	0.000
Female	172(89.6)	20(10.4)		
Male	162(70.7)	67(29.3)		
Religion			52.99	0.000
Christian	184(84.0)	35(16.0)		
Muslim	136(84.0)	26(16.0)		
Traditional	14(35.0)	26(65.0)		
Marital status			59.44	0.000
Divorced/ separated	1 (9.1)	10(90.9)		
married co-inhabiting with partner	30(55.6)	24(44.4)		
Single	303(85.1)	53(14.9)		
Ethnic group			84.69	0.000
Hausa	16(55.2)	13(44.8)		
Igbo	16(38.1)	26(61.9)		
others (Igala, Fulani)	6(40.0)	9(60.0)		
Yoruba	296(88.4)	39(11.6)		
Type of residence			0.01[b]	0.971
Rural	4(80.0)	1(20.0)		

Urban	330(79.3)	86(20.7)		
Your highest level of education			9.07	0.000
None	20(33.9)	39(66.1)		
Primary	2(100.0)	0(0.0)		
Secondary	156(91.2)	15(8.8)		
Tertiary	156(82.5)	33(17.5)		
Occupational status			5.33	0.000
Professional (doctors, nurses, teacher)	3(42.9)	4(57.1)		
Skilled labor (artisans, drivers)	130(85.5)	22(14.5)		
Students	163(85.3)	28(14.7)		
Unemployed	18(72.0)	7(28.0)		
Unskilled labor (traders, farmers)	20(43.5)	26(56.5)		
In general, how would you rate your health status?			22.20	0.000
Excellent	169(88.5)	22(11.5)		
Good	156(70.6)	65(29.4)		
Poor	9(100.0)	0(0.0)		
To what extent do you observe the COVID-19 preventive measures (Use of Nose mask			15.25	0.002
High	15(62.5)	9(37.5)		
Low	142(84.5)	26(15.5)		
Moderate	163(79.9)	41(20.1)		
None	14(56.0)	11(44.0)		
Have you ever tested for COVID-19?			10.59	0.001
No	290(82.2)	63(17.8)		
Yes	44(64.7)	24(35.3)		
Have you ever had contact with a person with COVID-19 disease?			22.93[b]	0.000
No	326(81.5)	74(18.5)		
Yes	8(38.1)	13(61.9)		
Have you received the COVID-19 vaccine?			0.21	0.651
No	178(80.2)	44(19.8)		
Yes	156(78.4)	43(21.6)		

Fisher's statistics [b]

Factors influencing risky sexual behaviour during COVID-19 pandemic among youth in Osogbo, Osun state

The influencing factors of risky sexual behaviour was presented in table 6. The result revealed that youths aged 20 -24 years (AOR= 7.23, P=0.00, 95%CI: 2.57 - 20.33) were more

likely to practice risky sexual behaviour compared to age group 15 -19 years. We found that Muslim youths (AOR= 0.26, P=0.020, 95%CI: 0.09-0.81) were less likely to engage in risky sexual behaviour compared to Christians. Also, Yoruba (AOR= 0.31, P=0.030, 95%CI: 0.11 – 0.89) were less likely to practice risky sexual behaviour in relative to Hausas. Youths who have attained Secondary education (AOR=0.13, P=0.00, 95%CI: 0.04-0.40) and tertiary education (AOR: 0.14, P=0.001, 95%CI: 0.04 - 0.45) were less likely to practice risky sexual behaviour compared to the uneducated youths. Also, youths who had good health rating (AOR=2.48, P=0.002, 95%CI: 1.16 – 5.31) were more likely to practice risky sexual behaviour.

Table 6 : Factors influencing risky sexual behaviour during COVID-19 pandemic among youth in Osogbo, Osun state

	AOR	**P value**	**95% C.I.**	
Variables			**Lower**	**Upper**
Age grp				
15 – 19				
20 -24	7.23	0.000	2.57	20.33
Gender				
Female				
Male	1.35	0.432	0.64	2.87
Religion				
Christian				
Muslim	0.26	0.020	0.09	0.81
Traditional	0.32	0.050	0.10	1.00
Ethnic group				
Hausa				
Igbo	2.57	0.146	0.72	9.20
others (Igala, Fulani)	1.58	0.606	0.28	9.04
Yoruba	0.31	0.030	0.11	0.89
Your highest level of education				
None				
Primary	0.01	0.999	0.00	1.58
Secondary	0.13	0.000	0.04	0.40
Tertiary	0.14	0.001	0.04	0.45
Occupational status				
professional (doctors, nurses, teaching)				
skilled labor (artisans, drivers)	1.21	0.877	0.11	14.00
Students	1.47	0.757	0.13	16.46
unemployed	1.53	0.750	0.11	20.41
unskilled labor (traders, farmers)	2.18	0.534	0.19	25.52
In general, how would you rate your health status?				

Excellent				
Good	2.48	0.002	1.16	5.31
Poor	0.91	0.000	0.54	0.99
To what extent do you observe the COVID-19 preventive measures (Use of Nose mask				
High				
Low	0.80	0.793	0.15	4.29
Moderate	1.03	0.970	0.24	4.40
None	0.65	0.680	0.09	4.95
Have you ever tested for COVID-19?				
No				
yes	1.18	0.734	0.46	3.06
Have you ever had contact with a person with COVID-19 disease?				
no				
yes	6.14	0.010	1.55	24.24
Have you received the COVID-19 vaccine?				
no				
yes	0.81	0.646	0.33	1.98

AOR: Adjusted Odds Ratio, CI: Confidence Interval

DISCUSSION

Demographic Information

In this study, we documented the demographic characteristics, health self-rating, information about COVID-19, compliance to COVID-19 preventive measures, sexual behaviour during COVID-19 pandemic, and influencing factors of risky sexual behaviour among youths in Osun state, Nigeria. The study covered youths of age 15 to 24 years, the mean age of the participants was 21.1 ± 2.79 years, more of them were in the age group 20 to 24 years, and these findings reveal the true pattern of the distribution of age among youths which is consistent with other studies. Slightly more than average were Christians, about one out of three were Muslims and less than 10% were into traditional religion this finding portrayed the pattern of religion in Osogbo, Osun state (Mckenna, 2006). Most of the youths who participated in this study were single, this revealed the true pattern of age at first marriage in southwest Nigeria where child marriage is not allowed and where there is existence of lots of factors that delaystime to first marriage in Nigeria. A study carried out in Nigeria have shown similar rate and factors that influenced age at marriage were education culture and religion in southwest Nigeria (Adebowale et al., 2012). Majority of the youths were Yoruba, of cause, Osogbo, Osun state is dominated by Yoruba (Mckenna, 2006) and most of them resides in the Urban area. A lot of them were students and not working but have attained secondary and tertiary level of education, this is obtainable because of the age range (20- 24 years) of most of the participants.

Self-rated health

A lot of the youths have excellent health rating and majority have good health rating while few people had poor health rating, this was similar to a findings in the United State of America where self-rated health was reported among adolescence (Boardman, 2006). The pattern of the self-rated health has been linked to enduring self-concept in some study, but in addition, pattern of health status among youths is expected to be excellent. However, self-rated health assessment is a social epidemiological concept that used self-rated health as a proxy to measure health status among apparently healthy individual.

Information on COVID-19

This study showed that all the youths have heard about COVID-19 and sources of information were radio, newspaper, television, internet, social media and religious gathering. The fact that all the youths who participated in this study have heard about COVID-19 is not unexpected since the rate of awareness about COVID-19 in Nigeria is really encouraging. Another reason could be because of the COVID-19 lockdown that disrupted several sectors including schools, markets, and others. This is enough to create sufficient awareness about COVID-19. Even though all the youths have heard about COVID-19, there are still some misconceptions about COVID-19, Although a lot of the youths said COVID-19 is real, but misconception among them were "COVID-19 is a propaganda", "there are local herbal treatment for COVID-19", "COVID-19 only affects the rich", and "COVID-19 only affects those who travel abroad. A study in the northern part of Nigeria have also reported similar findings among the general population (Isah et al., 2020). The similarity is implying that there is no clear knowledge about COVID-19, despite the widespread awareness, this study is revealing that accurate information about COVID-19 may have not been properly addressed among the citizens. The study proceeded to assess compliance to COVID-19 preventive measures among the youths, we found that very low proportion of the youths had compliance to COVID-19 preventive measures and some of them were not even complying to the preventive measure at all. Similar finding have been reported by other scholars (Keinan et al., 2021; Wang et al., 2021). Age and political ideology were identified as major concern in the poor compliance to COVID-19 preventive measures, this is pointing to the need for age group specific intervention/awareness and strategies to improve compliance to COVID-19 preventive measures. Also, this study is showing that there may be a link between political ideology and people's behaviour towards COVID-19 preventive measures. This study also found that COVD-19 testing was really poor among the youths, only 16.2% of the youths have tested, this is the picture of testing in Nigeria (Adepoju, 2020). This pointed to the fact that there is major gap in COVID-19 testing, this could be a mask on the true prevalence of COVID-19 presented in Nigeria. Unlike in other countries where testing were taken to community level (Senok et al., 2020), as at now there is no known community testing for COVID-19 in Nigeria (Adepoju, 2020). In the same vein, there are no adequate death report system in Nigeria, there may be more COVID-19 related death in Nigeria as against the reported statistics. Ameliorating efforts on COVID-19 through community testing may be necessary. Out of the tested individuals, about 4.4% of the youths tested positive for COVID-19, although this rate seem to be low but it is higher than the rate of COVID-19 cases that

were reported among young ones in England (Ladhani et al., 2020). Reason for this disparity in the rate of positive cases of COVID-19 could be because of poor compliance to COVID-19 preventive measures in Nigeria. Part of the novelty of this study is assessing rate of COVID-19 testing among the youths, further study may be needed to explore the pattern among the entire population in Nigeria. Contacts with COVID-19 cases was 5% and less than half of the youths who participated in this study have received COVID-19 vaccine. The rate of COVID-19 found in this study is similar to the proportion reported among the general population in Nigeria (Eniade et al., 2022). Although lower rate of COVID-19 vaccine acceptance was found among youths in Arkansas (Willis et al., 2021), but quite far from the proportion expected in other to achieve herd immunity.

Sexual behaviour among youths during COVID-19 pandemic

This study documented a high (30%) rate of sexual intercourse among the youths, and 20.7% of the youths engage in risky sexual behaviour during COVID-19 pandemic. Although lower compared to the rate in South Africa (Mulaudzi et al., 2022), and also lower than the proportion of risky sexual behaviour that was document before COVID-19 in Nigeria (CDC, 2021). This study is suggesting that the COVID-19 pandemic restriction measures may have reduced the level of risky sexual behaviour among youths. The ongoing COVID-19 pandemic seems to have multiple effects in the sexual life of youth. Social distancing, school closure, and restriction of activities lead to a reduction of any kind of social contact. Additionally, as they were obliged to stay most of the time inside, adolescents and young adults were subjected to increased parental monitoring, which reduced independence, physical interaction with peers, and privacy (Stavridou et al., 2021).

Factors influencing risky sexual behaviour during COVID-19 pandemic among youths

In this study, we proceeded to assess the influencing factors of risky sexual behaviour and we found out that youths aged 20 – 24 have higher likelihood of engaging in risky sexual behaviour during COVID-19 pandemic. Age has been shown to be a major driver of several health issues, this study is as well corroborating the fact youths of higher age (20- 24 years) may have some level of dependence and low level of parental monitoring, physical interaction with peers, privacy, and ability to make unguided decisions (Stavridou et al., 2021). Similarly, youths who belong to Yoruba ethnic group were less likely to engage in physical activities. It has been explained that sexual desire and fertility differs across ethnic groups, the findings in this study could still find its roots in the disparities in sexual behaviour among ethnic groups (Adebowale, 2019; Li et al., 2020). Youths who have attained tertiary level of education were less likely to engage in risky sexual behaviour. As in other study, educational attainment has often been reported as a predictor of sexual behaviour(Zuilkowski & Jukes, 2012), as such those who have attained a higher level of education are expected to be more informed about the risk of unhealthy sexual behaviour Although, Many studies have attempted to determine the relationship between educational level and sexual behaviour, but a causal relationship in terms of study design and methods, and analysis of its mediating pathways still need further explanation. Youths who have poor self-rated health were less likely to engage in risky sexual behaviour and those who have good self-rated health were more likely to engage in risky sexual behaviour. Studies have established a relationship

between sexual activities and self-rated health (Bacevičienė et al., 2009), sexual strength/ activities depends on the health of individual, and self-rated health has been a major indicator of health among apparently healthy individual (Badawi et al., 2012).

Conclusion

All the youths have heard about COVID-19. There were lots of misconception about COVID-19, although majority of the youths said COVID-19 is real, but misconception among them were "COVID-19 is a propaganda", "there are local herbal treatment for COVID-19", "COVID-19 only affects the rich", and "COVID-19 only affects those who travel abroad". COVID-19 testing was poor among the youths implying there is need for improvement on Community testing especially among youths. Ameliorating efforts on COVID-19 through community testing may be necessary. Also, we found that very low proportion of the youths had compliance to COVID-19 preventive measures and some of them were not even complying to the preventive measure at all. Further, this study documented a high (30%) rate of sexual intercourse among the youths, and 20.7% of the youths engage in risky sexual behaviour during COVID-19 pandemic. The rate of risky sexual behaviour was high during COVID-19 pandemic. Youths aged 20 – 24 have higher likelihood of engaging in risky sexual behaviour during COVID-19 pandemic. Youths who have attained tertiary level of education were less likely to engage in risky sexual behaviour.

Risky sexual behaviour remains a major public health concern, even during the COVID-19 pandemic. Attention should be given to youths especially lower age (15- 19 years), those who have educational level that is below tertiary education, and agile youth in the efforts to reduce the rate of risky sexual behaviour.

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