

# Knowledge and Health-seeking Behaviour of Adolescents on COVID-19 in Rivers State, Nigeria

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## *Author's contribution*

*The sole author designed, analysed, interpreted and prepared the manuscript.*

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## **ABSTRACT**

**Background:** COVID-19 pandemic has posed an enormous threat to global public health and the human social life, adolescents exposed to COVID-19 are as likely as old people to become infected and spread the infection. The study was conducted to determine the knowledge and health-seeking behaviour of adolescent during the COVID-19 pandemic in Rivers state Nigeria.

**Methods:** A cross-sectional online study was conducted. An online Google-doc questionnaire administered via WhatsApp instant messaging was distributed during the national COVID-19 lockdown with interstate travel restrictions, school and market closures in Rivers state, Nigeria. About 200 responses were received within two months.

**Results:** About (45%) were middle adolescent (14-16 years) and 48% were males. Majority (80%) and (76%) respectively reported that droplets of affected person and surfaces touched by affected persons could spread COVID-19. However, some of the adolescents were not sure if touching of bank notes, dealing with pets, stool from public toilet, goods imported from China could spread coronavirus. Majority of the adolescents identified fever (86%), dry cough (85%), and difficulty in breathing (88%) as symptoms of COVID-19. About (54%) of the adolescents had ever felt ill and thought they might be infected with Coronavirus with fever (70.9%) as the major symptoms, of which (48%) tried seeking for help and more than half (56.3%) sought help from their parents.

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**Conclusion:** Adolescents' had poor knowledge on symptoms and spread of COVID-19, therefore continuous awareness is necessary to improve knowledge and curb the spread of the virus. Educational intervention to improve adolescents' knowledge and health-seeking behaviours is recommended.

*Keywords: Knowledge; health-seeking behaviour; adolescent; COVID-19.*

## 1. BACKGROUND

Coronavirus disease 2019 (COVID-19) is caused by a new strain of coronavirus (SARS-CoV-2) that was not previously recognized in humans [1]. It was first reported to the World Health Organization on the 31<sup>st</sup> of December, 2019 in Wuhan China [2]. COVID-19 is noted to be highly infectious, and its main clinical symptoms include fever, dry cough, fatigue, myalgia, and dyspnea [3]. Person-to-person spread of SARSCoV-2 occurs primarily through close connection with an infected person, mainly via respiratory droplets and after touching contaminated objects. Research is currently undergoing on additional routes of transmission including fecal viral shedding [4]. The governments worldwide in response to the pandemic have implemented a number of measures to curtail the spread of the disease. These include closing sites of public recreation and education, such as schools and universities, and limiting face-to-face interactions through enforced social distancing [5].

COVID-19 greatly affects lives around the world and due to isolation measures, contact restraints and economic shutdown; it imposed a complete change to the psychosocial environment of affected countries including Nigeria. The current situation affects children, adolescents and their families in an exceptional way [6]. COVID-19 pandemic has posed an enormous threat to global public health and the human social life [7]. The lockdown and closures of non-formal education opportunities implemented affects adolescents greatly depriving them of social engagement with their peers and educators. This prolonged periods of closures and movement restrictions may lead to additional emotional unrest and anxieties [8].

Adolescents' constitute a significant population [9], during adolescence there is an increasingly quest for independent which poses a need for them to be responsible for their own health behaviours [10]. Health-seeking behaviour is seen as a process by which an individual acts to maintain the state of physical fitness and well-being that enables man to manage the physical,

social and biological environments to his/her own satisfaction [11]. The act of being healthy in the face of diseases or illness involve individual engaging in what is referred to as health-seeking behaviours when is essential [12] especially during the COVID-19 pandemic.

Adolescents and young people exposed to COVID-19 are as likely as old people to become infected and spread the infection. However, strict adherence to national guidelines around screening, testing, containment and care and practice social distancing is essential to curb its spread [8]. Behavioural compliance is vital due to the critical role of person-to-person transmission in the spread of coronavirus especially for adolescents as they socialize in close peer groups [10]. Therefore adequate information is required to achieve successful adherence to protective measures so that individuals would understand what they need to do, how to follow instructions and guidance, and how to eventually make effective decisions in relation to their own health and the health of others [10]. A study conducted among students in Southern Philippines found that about 73.58% of the students knew that the COVID-19 could spread through touching, sneezing, kissing, and food [13]. Also a study conducted in Nairobi, Kenya found that most (83%) knew anyone could be infected [14]. However, there is paucity of data on knowledge and health seeking behaviour of adolescents on Covid-19 in Rivers state Nigeria.

The study is timely, relevant at this time and the outcome of this study will help inform health practitioners, public health professionals, parents and the government to understand the knowledge and health seeking behaviours of adolescents during the COVID-19 pandemic and to develop possible interventions. The outcome would also help in educating adolescents in adopting Covid-19 preventive measures. The study was conducted to determine the knowledge and health seeking behaviour of adolescent during of COVID-19 pandemic in Rivers state Nigeria.

## 2. METHODOLOGY

### 2.1 Study Area

Rivers State is one of the 36 states of Nigeria. According to National Bureau of Statistics (2016) the population is at 7,303,924 persons i.e. 3,525,690 males and 3,778,234 females. Young adults aged 15-24 years have a population of 2,629,412 comprising of 36% of the entire population. The capital of Rivers state is Port Harcourt and is the largest city which is economically important as the centre of Nigeria's oil industry. The individuals from Rivers State are known as "Riverians". The inland part of the state consists of tropical rainforest; near the coast, the typical Niger Delta environment consists of many mangrove swamps.

### 2.2 Study Design

This is a descriptive cross sectional online study conducted from July to August 2020 (during the national COVID-19 pandemic lockdown with interstate travel restrictions, school and market closures in Rivers state, Nigeria).

### 2.3 Sample Size Estimation

The sample size was determined using Cochran's formula

$$n = \frac{Z\alpha^2 pq}{d^2}$$

Where;  $Z\alpha$  = a variable with a critical value of 1.96 at 95% confidence interval

$P$  = 10.1% Proportion of respondents that sort help from health facility during Covid-19 pandemic in Oyo state [12]

$$q = 100 - p$$

$$100 - 10.1 = 89.9\%$$

$$d = \text{precision} = 5\%$$

$$n = 139.5 = 140$$

$$20\% \text{ nonresponse} = 28$$

$$n = 140 + 28 = 168$$

#### 2.3.1 Study population and sampling

The study was conducted online, circulated through an instant message via WhatsApp Application and using Google Doc Form. A survey link was generated and distributed to individuals and WhatsApp groups involving adolescents. The adolescents further shared the link with their circle of friends in Rivers state. In

addition, the researchers linked up with other adolescent researchers and schools to disseminate the link of the online questionnaire to adolescents within their networks and about 200 responses were received. Information was collected from adolescents in Rivers State to assess their knowledge and health seeking behaviour during the COVID-19 pandemic. Knowledge here means knowledge on spread and symptoms of COVID-19 and health seeking behaviour means their health behaviour when they perceived symptoms of coronavirus during the lockdown.

#### 2.3.2 Inclusion and exclusion criteria

Adolescents within the ages of 10 to 19 years, both male and female were included in the study. Adolescents that could not read or write and those without a mobile phone or access to internet were excluded by default as the study data collection technique was online.

#### 2.3.3 Data collection instrument

A self-administered anonymous online questionnaire was used to elicit information from the respondents. The questionnaire was developed following review of literatures. The questionnaire contained information on socio-demographic characteristics, knowledge and health seeking behaviour. Under knowledge questions were asked on knowledge of spread of COVID-19 and knowledge of symptoms of COVID-19. The responses were either Yes, No or Not sure. Under health seeking behaviour, the respondents were asked if they had ever fallen ill and thought they might be infected with coronavirus. They were also asked of the symptoms felt, if they tried seeking for help, who they sought help from and their satisfaction with the responses received.

### 2.4 Validity and Reliability

The study instrument was validated and pretested before the commencement of the study. The questionnaire was developed to capture the objectives of the study. The instrument was validated by experts in the field of public health and reviewed by the adolescent health to test their comprehension. The questionnaire was pretested with a Cronbach's alpha value for the reliability of 0.7 obtained.

#### 2.4.1 Data analysis and management

The Statistical Package for the Social Science (IBM-SPSS version 21) was used for the analysis

of quantitative data. Descriptive and analytic statistics were conducted. Categorical data were presented in form of frequencies and percentages with results presented in tables and charts. Chi square was used to determine association and the level of significance was set at  $p < 0.05$ .

### 3. RESULTS

#### 3.1 Information on Socio-Demographic Characteristics of Adolescents

Table 1 shows the socio-demographic characteristics of the respondents. About two hundred responses were received. About 104(52%) were females and 90(45%) were middle adolescent. About 90(45%) were in senior secondary classes and 52(26%) had completed secondary school. More than half 134(67%) were from monogamous family, 14(7%) from step family and 76% their parents stayed together.

#### 3.2 Knowledge on Spread of COVID-19

Of the 7 items on knowledge of spread of COVID-19, only 3 items were correctly answered scoring above fifty percent. About 160(80%) knew that droplets of affected person could spread COVID-19, 152(76%) knew that surfaces touched by affected persons could spread COVID-19 and 104(52%) knew that dealing with pets would not spread COVID-19. However,

about 62(31%) reported that touching bank notes could spread COVID-19 and 68(34%) were not sure if goods imported from China could spread COVID-19. About 88(44%) reported that COVID-19 could be spread by asymptomatic persons (Table 2).

#### 3.3 Knowledge on Symptoms of COVID-19

Of the 10 items on knowledge of symptoms of COVID-19, only 5 items of the responses were correctly answered scoring above fifty percent. About 172(86%) reported the symptoms of COVID-19 as fever, 170(85%) as dry cough, 176(88%) as difficulty in breathing and 106(53%) as headache. About 128(54%) noted that vomiting wasn't symptoms of COVID-19. However, 96(48%) did not know that body aches were part of symptoms of COVID-19, likewise 84(42%), 74(37%), 88(44%) did not know that loss of smell/taste, tiredness, sore throat were part of symptoms of COVID-19 respectively. Nevertheless, 28(14%) and 50(25%) were not sure that headache and diarrhea were symptoms of COVID-19 respectively (Table 3).

#### 3.4 Sources of Information on COVID-19

About 84(42%) first heard of COVID-19 from the radio/television, 38(19%) first heard it from friends, 32(16%) first heard from social media platforms and 4(2%) from school (Fig. 1).

**Table 1. Socio demographic characteristics of adolescents in Rivers state, Nigeria**

Characteristics	N=200	%
<b>Sex</b>		
Male	96	48.0
Female	104	52.0
<b>Age</b>		
<b>Age in group</b>		
Early adolescent (11-13)	40	20.0
Middle Adolescent (14-16)	90	45.0
Late Adolescent (17-19)	70	35.0
<b>Highest school attended</b>		
Junior secondary	58	29.0
Senior secondary	90	45.0
Completed secondary	52	26.0
<b>Family type</b>		
Monogamy	134	67.0
Polygamy	34	17.0
Single parents	18	9.0
Step family	14	7.0
<b>Parents stay together</b>		
Yes	152	76.0
No	48	24.0

**Table 2. Knowledge of spread of COVID 19 among adolescents in Rivers state, Nigeria**

<b>Spread of COVID 19</b>	<b>N=200</b>	<b>%</b>
<b>Droplets of affected person (with cough or expiration)</b>		
Yes	160*	80.0
No	34	17.0
Not sure	6	3.0
<b>Surfaces touched by affected person</b>		
Yes	152*	76.0
No	34	17.0
Not sure	14	7.0
<b>Touching bank notes</b>		
Yes	62	31.0
No	86	43.0
Not sure	52*	26.0
<b>Dealing with pets</b>		
Yes	50	25.0
No	104	52.0
Not sure	46*	23.0
<b>Stool (e.g. in public toilets)</b>		
Yes	64	32.0
No	86*	43.0
Not sure	50	25.0
<b>Goods imported from China</b>		
Yes	40	20.0
No	92*	46.0
Not sure	68	34.0
<b>Disease could be transmitted from asymptomatic person</b>		
Yes	88*	44.0
No	62	31.0
Not sure	50	25.0

\*Correct answer

### 3.5 Health Seeking Behaviour on COVID-19

About 108(54%) had ever felt ill and perceived they might be infected with COVID-19 of which about 96(48%) tried seeking for help. More than half 54(56.3%) sought help from their parents, 12(12.5%) from friends, 6(6.3%) from religious leaders and 4(4.2%) from social media and internet platforms. Majority 89.6% of the people that sought help were satisfied. Of the one hundred and eight respondents that felt ill and thought might be infected with COVID-19, 78(70.9%) felt symptoms of fever, 32(29.1%) felt symptoms of dry cough, 26(23.6%) felt loss of smell or taste and 18(16.4%) felt difficulty in breathing (Table 4).

### 3.6 Association between Age, Gender, Schooling Status and Health Seeking Behaviour

Table 5 shows the association between age, gender, schooling status and health seeking

behaviour on COVID-19 among the respondents. There was no statistical significant between age, gender, schooling status and health seeking behaviour of adolescents ( $p < 0.05$ ).

## 4. DISCUSSION

This study was aimed at assessing the knowledge and health-seeking behaviour of adolescents in Rivers state, Nigeria. In assessing the knowledge of adolescents on COVID-19, majority about (80%) and (76%) respectively reported that droplets of affected person and surfaces touched by affected persons could spread COVID-19. However, some of the adolescents were not sure if touching of bank notes, dealing with pets, stool from public toilet, goods imported from China and asymptomatic persons could spread coronavirus. A similar finding was found among students in Southern Philippines were about 73.58% of the students knew that the COVID-19 could spread through touching, sneezing, kissing, and food [13]. Also

in line with the current study, a survey among the Malaysian public found that most participants knew that people who had contact with an infected person should be immediately isolated as an effective way to reduce the spread of the virus. However, 35.7% answered correctly when

asked if eating and touching wild animals could result in infection [15]. The similarities found in the knowledge of spread of COVID-19 from the current and prior study may be attributed to the awareness and publicity on the spread of COVID-19 during the pandemic.

**Table 3. Knowledge of symptoms of COVID 19 among adolescents in Rivers state, Nigeria**

Symptoms of COVID 19	N=200	%
<b>Fever</b>		
Yes	172*	86.0
No	24	12.0
Not sure	4	2.0
<b>Dry cough</b>		
Yes	170*	85.0
No	22	11.0
Not sure	8	4.0
<b>Body aches</b>		
Yes	48*	24.0
No	96	48.0
Not sure	56	28.0
<b>Difficulty in breathing</b>		
Yes	176*	88.0
No	24	12.0
Not sure	0	0
<b>Vomiting</b>		
Yes	40	20.0
No	128*	54.0
Not sure	32	16.0
<b>Loss of smell or taste</b>		
Yes	72*	36.0
No	84	42.0
Not sure	44	22.0
<b>Headache</b>		
Yes	106*	53.0
No	66	33.0
Not sure	28	14.0

\*Correct answer

**Table 4. Knowledge of symptoms of COVID 19 among adolescents in Rivers state, Nigeria**

Symptoms of COVID 19	N=200	%
<b>Tiredness</b>		
Yes	74*	37.0
No	88	44.0
Not sure	38	19.0
<b>Sore throat</b>		
Yes	88*	44.0
No	76	38.0
Not sure	36	18.0
<b>Diarrhea</b>		
Yes	26*	13.0
No	124	62.0
Not sure	50	25.0

\*Correct answer

**Table 5. Health seeking behaviour of adolescents on COVID-19 in Rivers state, Nigeria**

Characteristics	N=200	%
<b>Ever become ill and thought might be infected with COVID 19</b>		
Yes	108	54.0
No	92	46.0
<b>Tried seeking help</b>		
Yes	96	48.0
No	12	6.0
<b>Who sought help from (N = 96)</b>		
Doctor/health worker	12	12.5
Parents	54	56.3
Family members	4	4.2
Friends	12	12.5
Religious leaders	6	6.3
Trusted persons	4	4.2
Social media platforms	2	2.1
Internet	2	2.1
<b>Satisfied with feedback (N=96)</b>		
Yes	86	89.6
No	10	10.4
<b>Symptoms felt (Multiple Responses)</b>		<b>% of cases</b>
Fever	78	70.9
Dry cough	32	29.1
Body aches	22	20.0
Difficulty in breathing	18	16.4
Loss of smell or taste	26	23.6
Stooling	4	3.6
Vomiting	14	12.7

**Table 6. Association between socio-demographic characteristics and tried seeking for help among adolescents in Rivers state, Nigeria**

Variable	Tried seeking for help		
	Yes n(%)	No n(%)	Total N = 108
<b>Sex</b>			
Male	52(89.7)	6(10.3)	58
Female	44(88.0)	6(12.0)	50
	$\chi^2 = 0.074$	P Value = 0.785	
<b>Age in group</b>			
Early adolescent (11-13)	18(81.8)	4(18.2)	22
Middle Adolescent (14-16)	40(90.9)	4(9.1)	44
Late Adolescent (17-19)	38(90.5)	4(9.5)	42
	$\chi^2 = 1.403$	P Value = 0.496	
<b>Highest school attended</b>			
Junior secondary	26(90.0)	6(10.0)	32
Senior secondary	46(88.5)	26(28.9)	52
Completed secondary	24(100)	0(0)	24
	$\chi^2 = 5.660$	P Value = 0.129	

With regards to knowledge on symptoms of COVID-19 it was found that of the 10 items on knowledge of symptoms of COVID-19, only 5 items of the responses were correctly answered and scored above fifty percent. Majority of the adolescents identified fever, dry cough,

headache and difficulty in breathing as symptoms of COVID-19. More than half noted that vomiting wasn't the symptoms of COVID-19. However, some of the adolescents did not know that body aches, loss of smell/taste, tiredness and sore throat were part of symptoms of

COVID-19. Also, some of the adolescents were not sure if headache and diarrhea were symptoms of COVID-19. This was in accordance with a study conducted among students in Southern Philippines and Nairobi, Kenya that reported fever and cough as primary symptom of the COVID-19 infection [13,14]. Also, a survey among female midwifery students in Turkey reported that fever, cough, difficulty in breathing, diarrhea were the most common symptoms of coronavirus diseases [16]. Also in line youths in Kenya found that knowledge on symptoms of COVID-19 was generally high [17]. In contrary, a study conducted in Nairobi, Kenya found that only 42% listed difficulty breathing as symptoms of COVID-19 and more than half reported sneezing (56%), even though this is not a COVID-19 symptom [14]. The differences between the current and prior studies may be due to the study locale and population.

Regarding the sources of information on COVID-19, the adolescents first heard of coronavirus on the radio/television (42%), from friends (19%),

from social media platforms (16%) and from school (2%). A study among adolescent in Norway found that TV (86%) and family (81.1%) were indicated to be the main sources of pandemic-related health information, while 58.6% also reported reading newspapers for information [10]. The difference between the present and former study is that the present study focused first heard of COVID-19 while the former study focused on sources of pandemic-related health information.

Health seeking behaviour is seen as illness behaviour or sick-term behaviour. It encompasses activities undertaken to maintain good health, to prevent ill health, as well as dealing with any departure from a good state of health [18,19]. The present study tried to determine adolescents' illness behaviour when they suspected they might be infected with coronavirus. During the COVID-19 pandemic, it was found that about (54%) of the adolescents had ever felt ill and perceived they might be infected with Coronavirus of which 48% tried

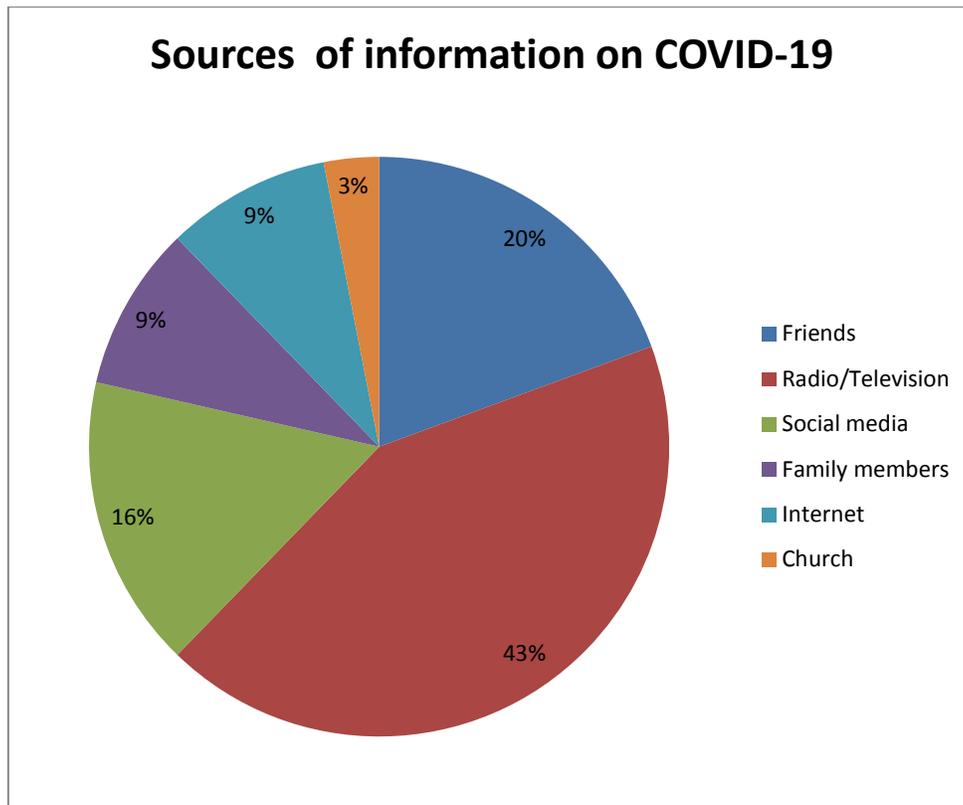


Fig. 1. Shows the sources of information on COVID-19 among adolescents in Rivers state Nigeria

seeking for help. A study conducted in Ibadan, Nigeria found that majority of the respondents (85.9%) experienced signs and symptoms of all kind of illness during the COVID-19 pandemic [12]. The difference in the current and prior study is that, the prior study focused on all kinds of illness while the current study focused on signs and symptoms related to COVID-19.

Among adolescents who sought for help, more than half sought for helps from their parents, while others sought help from their friends, religious leaders, social media and internet. In contrary, a study conducted in Nairobi, Kenya found that when participants were asked what they would do if they had symptoms of COVID-19, the most likely response was "go to a clinic" (71%) and only 42% said they would call the government's toll-free hotline, and only 19% said they would stay at home more [14]. The difference in current and prior study may be due to the study locale and population.

Research report that adolescents in most cases are more likely to seek help or support from people and places they know and where they feel some sense of belonging, rather than making calculated assessments of the quality of the help or service [20]. This corroborates findings from the present study that found that majority of the adolescents sought help from their parents with majority satisfied with the feedbacks. This can be understood, since adolescents were at home during the lock down with their parents is logical they would seek help from them.

This current study also found that among the respondents that felt ill and thought might be infected with COVID-19, the majority (70.9%) felt symptoms of fever, other symptoms felt include dry cough, loss of smell or taste, felt difficulty in breathing, body aches, vomiting and stooling. There was no statistical significant between age, gender, schooling status and health seeking behaviour of adolescents. This may be due to the fact that health seeking behaviour for adolescents is not a function of their age, gender and schooling status but a function of the availability of trusted individuals with whom they can relate with.

## 5. CONCLUSION

In conclusion, the adolescents had a poor knowledge on the spread and symptoms of coronavirus disease. The majority of the

adolescents were aware that droplets of affected person and surfaces touched by affected persons could spread COVID-19. However, some of them were not sure if touching of bank notes, dealing with pets, stool from public toilet, goods imported from China and asymptomatic persons could spread coronavirus. Also, majority of the adolescents identified fever, dry cough, headache and difficulty in breathing as symptoms of COVID-19. Nevertheless, some of the adolescents did not know that body aches, loss of smell/taste, tiredness and sore throat were part of symptoms of COVID-19. The major sources of information were from radio/television. During the COVID-19 pandemic, more than half of the adolescents had felt ill and thought they might be infected with COVID-19 of which less than half tried seeking for help, they mostly sought help from their parents and were satisfied with the feedbacks. Adolescents' knowledge on symptoms and spread of COVID-19 were poor, therefore continuous awareness on spread and symptoms is necessary to curb the spread of the virus.

The study had limitations, the study was conducted online and this may be prone to biases. Also, since convenience sampling was used in recruiting participants, therefore the study may be not generalized to all adolescents in Rivers state. In addition, adolescents without a mobile and with restricted access to internet were exempted from the survey and therefore not a total representation of the population. Notwithstanding the limitations, the findings of this study had shown a poor knowledge on symptoms and spread of coronavirus disease among adolescents, continuous awareness is necessary to increase knowledge and further help curb the spread of the virus. Educational intervention to improve adolescents' knowledge and health seeking behaviours is recommended.

## CONSENT AND ETHICAL APPROVAL

Ethical approval was gotten from the University of Port-Harcourt Teaching Hospital Ethical Committee. For adolescent below 18 years consent was sought from their parents or caregivers, a consent note for parents was sent along with the link and assent to participate in the study was sought from the adolescents.

## COMPETING INTERESTS

Author has declared no competing interests exist.

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