

Original Article

**COVID 19: KNOWLEDGE AND PREVENTIVE PRACTICES AMONG PUPILS IN
PUBLIC AND PRIVATE PRIMARY SCHOOLS IN A NIGERIAN TOWN.**

Nnamdi EO

Department of Community Medicine, Benjamin Carson College of Health and Medical
Sciences, Babcock University, Ilishan Remo, Ogun State, Nigeria.

Correspondence: Dr. Nnamdi Okoro

Email: drneco@yahoo.com.

ABSTRACT

Background: The COVID-19 pandemic may be over but it left in its wake a lot of important lessons. In order to control the spread of the pandemic, primary schools in Nigeria were shut and reopened six months later with the instruction that pupils should be adequately educated on COVID-19 and its prevention. This study assessed and compared the knowledge of and preventive practices against COVID-19 among pupils in public and private primary schools in Ile-Ife, Osun State, Nigeria.

Methods: This comparative cross-sectional study was carried out among 400 pupils randomly selected from 50 public and 50 private primary schools in Ile-Ife. The instrument was a purpose-developed pretested questionnaire which was interviewer-administered. The Bloom's cut off points were used to categorize the pupils' knowledge of COVID-19 and preventive practices against it. Data analysis was with SPSS version 25, while p values less than 0.05 were considered as statistically significant.

Result: Overall, half of the respondents (51.5%) had good knowledge of COVID-19, while 60% had good preventive practices against COVID-19. Pupils in the public schools had a lower level of COVID-19 knowledge (47.5% vs 55.5%, $p=0.205$), and preventive practices (48% vs 72%, $p<0.001$).

Conclusion: A fair percentage of the pupils had good knowledge of COVID-19 and its preventive practices. School authorities should ensure that pupils are well educated at their level on the prevention and control of communicable diseases, and ensure adequate infection prevention and control in all schools at all times.

How to Cite: Nnamdi EO. Knowledge and Preventive Practices among Pupils in Public and Private Primary Schools in a Nigerian Town. *Global Professionals Multidisciplinary Practices Journal*. 2024; 1(3):1-23

Keywords: COVID-19, Ile-Ife, knowledge, prevention, pupils.

Introduction

The COVID-19 pandemic may have come and gone, but the lessons that were learned from it will remain relevant for a long time to come.¹⁻⁴ The pandemic took the world unawares with various initial reactions among people (outright dismissal, skepticism, panic, indifference, etc.)⁵⁻⁷ and governments with perceptions that some governments did not respond early, or adequately, or both with regards to the pandemic.^{6,7}

The COVID-19 pandemic brought to light, as well as aggravated the preexisting deficiencies and inadequacies in the healthcare system of various countries globally.⁸⁻¹¹ The pandemic also exposed and worsened previous significant gaps in Infection Prevention and Control (IPC) measures in places of large numbers of human assembly including schools, health facilities, airports, etc.¹²⁻¹⁴ Expectedly, this situation was evident in Nigeria as studies have shown that before the COVID-19 pandemic, the regular and adequate

provision of IPC measures remained a challenge in most public and private primary and secondary schools in Nigeria.¹⁵⁻¹⁸

As part of the measures to control the COVID-19 pandemic, various governments in countries all over the world (including the federal and state governments in Nigeria) shut down schools. This was necessary because apart from the number of people involved (staff and students), there is significant physical contact that occurs between individuals in schools, especially nursery, primary and secondary schools.

In light of the fact that schools cannot remain shut perpetually, the government of Osun State, Nigeria announced the reopening of primary and secondary schools on the 21st of September 2020. Prior to the resumption of schools, the federal government of Nigeria released a set of guidelines to be implemented in every school with the aim of preventing

and controlling the spread of COVID-19 among staff and students. Part of the guidelines stipulate that staff and students are well-taught about COVID-19 and the preventive practices they need to carry out among themselves to avoid contracting the disease. The guidelines also stated that school heads and teachers ensure that these COVID-19 preventive practices are carried out to the letter by the pupils while they are in school.

While there are studies on the knowledge of COVID-19, as well as preventive practices against it in Nigeria among other groups such as secondary school students,¹⁹⁻²¹ undergraduates,^{22,23} and the general public,²⁴⁻²⁷ there was a dearth of studies on the knowledge of and preventive practices against COVID-19 among primary school pupils in Nigeria.

Hence, this study assessed and compared the knowledge of COVID-19 and the preventive practices against COVID-19 among pupils in public and private primary schools in Ile-Ife, Osun State,

Nigeria. This study also determined the factors reported by the pupils that served as barriers to the regular practicing of the COVID-19 preventive measures while they are in school.

The findings from this study will facilitate making appropriate recommendations to the relevant stakeholders to improve the knowledge and prevention of communicable diseases among primary school pupils, as well improve and sustain proper IPC measures in primary schools in Osun State, Nigeria for posterity.

Null Hypotheses: 1. There is no statistically significant difference between the knowledge of COVID-19 among pupils in public and private primary schools in Ile-Ife.

2. There is no statistically significant difference between the preventive practices against COVID-19 among pupils in public and private schools in Ile-Ife.

Materials and Methods

This study was carried out in Ile-Ife, also known as Ife, which is an ancient Yoruba

city, located in Osun State, South-west Nigeria. It was a comparative cross-sectional study. Pupils in primary one to six who gave assent, and whose parents gave consent to participate in the study were included, while pupils in schools for children with special needs were excluded from the study.

The sample size was calculated using the formula for comparing two proportions:²⁸

$$N = \frac{2(Z\alpha + Z\beta)^2 \times PQ}{(p_1 - p_2)^2};$$

Where N is the minimum sample size in each group;

$Z\alpha$ is the standard normal deviate which is 1.96 at 95% confidence level;

$Z\beta$ is the critical value depending on the power used which is 0.84 at a power of 80%;

P is the average of the proportions of interest in both groups which is $\frac{p_1 + p_2}{2}$;

Q is $1 - P$;

P_1 is the proportion of interest on the first group;

P_2 is the proportion of interest in the second group.

A survey done in Liberia to assess the knowledge and preventive practice on Ebola Virus Disease (EVD) among students in public and private secondary schools revealed that 64% of the students in public secondary schools had good knowledge and preventive practice on EVD while 78% of the students in private secondary schools had the same.²⁹ These percentages will be used as proxies to calculate the sample size. So, p_1 is 0.64 while p_2 is 0.78; $P = \frac{0.64 + 0.78}{2} = 0.71$; $Q = 1 - 0.71 = 0.29$.

$$N = \frac{2(1.96 + 0.84)^2 \times 0.71 \times 0.29}{(0.64 - 0.78)^2} = \frac{15.68 \times 0.2059}{0.0196} = 164.72,$$
 which is approximately 170 (to the nearest round number). So, the sample size is 170 pupils in private schools and 170 pupils in public schools, making a total of 340 pupils.

If a non-response rate of 10% is considered,

$N = \frac{n}{1-NRR}$; where n is the calculated sample size and NRR is the non-response rate which is 10% or 0.1;³⁰ so,

$N = \frac{170}{1-0.1} = 188.9$, which was approximated to 200. So, the final sample size was 200 pupils in public schools and 200 pupils in private schools, making a total of 400 pupils.

Fifty public and fifty private primary schools in Ile-Ife were randomly selected for the study making a total of 100 schools. For the pupils, a multi-stage sampling was used as follows:

Stage 1: The schools were stratified according to ownership (private and public).

Stage 2: Then, simple random sampling (computer-generated random numbers) was used to select four classes from each school.

Stage 3: Then, simple random sampling (computer-generated random numbers) was also used to select one pupil from each of the selected four classes. In summary, four pupils were selected from each of the 100 schools, making a total of 400 pupils.

The instrument to assess the knowledge and preventive practice of the pupils on COVID-19 was a purpose-developed questionnaire prepared after an extensive literature search. The questionnaire had three sections, A to C. Section A contained the sociodemographic characteristics of the pupils; section B contained questions that assessed their knowledge on COVID-19, while section C contains questions and comments that assessed their preventive practices on COVID-19. Sections B and C of the questionnaire had relevant pictures (coughing, sneezing, hand shaking, handwashing, facemask, social distancing, etc.) to help the pupils understand and answer the questions better.

The questionnaire was pretested and validated with 10% of the sample size (for

the schools and the pupils), which are five private and five public primary schools, making a total of 10 schools and 40 pupils. The pretest and validation were carried out in Atakunmosa West Local Government Area of Osun State. The pretest and validation provided an opportunity to ensure that the information from the questionnaire answered the objectives of the study. It also provided the opportunity to clear the ambiguities that arose from the instruments before they were used for the main study. The validation was done by experts in Public/Community Health, Respiratory Medicine and Primary/Basic Education.

Data collection was by the lead researcher and research assistants. The questionnaire was interviewer-administered for all the pupils. The data were electronically collected using Kobocollect software after the configuration of the questionnaire into electronic tablets. The generated data were downloaded from the cloud on a Microsoft Excel spreadsheet before

importation to SPSS version 25 for cleaning and analysis.

The knowledge and preventive practice of the pupils on COVID-19 was assessed by scoring their responses to the questions and comments in the questionnaire for assessing their knowledge and preventive practice on COVID-19. Each correct response was scored two points. The items to assess their knowledge were 17 while the items to assess their preventive practice were 10; hence, the maximum attainable scores were 34 for knowledge and 20 for preventive practice.

The categorization of the scores was according to Bloom's criteria/cut-off points for assessing knowledge, attitude and practice which state that scores that are 80% and above are good, scores between 60% and 79% are moderate, while scores below 60% are poor.³¹ So, scores from 27 and above were categorized as good knowledge, scores between 20 and 26 as moderate knowledge while scores below 20 were categorized as poor

knowledge. For preventive practice, scores from 16 and above were categorized as good preventive practice, scores between 12 and 15 as moderate preventive practice, while scores less than 12 were categorized as poor preventive practice.

Data analysis was done with IBM SPSS version 25. Univariate analysis (tables and percentages) was used to summarize the data on the knowledge and preventive practice of the school pupils on COVID-19. Bivariate analysis (Chi-Square) was used to compare the knowledge and preventive practice on COVID-19 among the pupils in the public and private schools. The confidence level used was 95% with a p-value less than 0.05 considered as statistically significant.

Ethical approval was obtained from the Human Research and Ethics Committee of the Institute of Public Health, Obafemi Awolowo University, Ile-Ife. Permission

was obtained from the Education Authority of Ife-Central Local Government Area, Osun State. Permission was also obtained from the various school heads to administer the questionnaires to the pupils. Participation of the respondents in this study was voluntary. A written consent was obtained from the parents of the pupils while oral assent was obtained from the pupils. Respondents were at liberty to opt-out of the study at any point in time without any fear or penalty.

This study was carried out among school-age children (6 years to 12 years). Their level of understanding of the questions and pictures in the questionnaires may not be optimal due to their age range. This may have had an effect on their responses. This was mitigated by properly explaining the questions to the pupils before their responses.

Results

Table 1: Socio-demographic Characteristics of Pupils

Characteristics	Public Freq (%) n = 200	Private Freq (%) n = 200	Subtotal Freq (%)	Total Freq (%) N = 400
Age in years as at last birthday				
5 – 7	30 (15.0)	72 (36.0)	102 (25.5)	400 (100.0)
8 – 10	82 (41.0)	120 (60.0)	202 (50.5)	
11 – 13	71 (35.5)	8 (4.0)	79 (19.75)	
14 – 16	17 (8.5)	0 (0.0)	17 (4.25)	
Gender				
Male	91 (45.5)	83 (41.5)	174 (43.5)	400 (100.0)
Female	109 (54.5)	117 (58.5)	226 (56.5)	
Class				
Primary 1	27 (13.5)	31 (15.5)	58 (14.5)	400 (100.0)
Primary 2	36 (18.0)	41 (20.5)	77 (19.3)	
Primary 3	36 (18.0)	44 (22.0)	80 (20.0)	
Primary 4	37 (18.5)	45 (22.5)	82 (20.5)	
Primary 5	32 (16.0)	34 (17.0)	66 (16.5)	
Primary 6	32 (16.0)	5 (2.5)	37 (9.3)	

Table 1 shows the socio-demographic characteristics of the pupils. The table shows that 202 (50.5%) pupils were between eight and 10 years, 226 (56.5%) were females, while 82 (20.5%) were in primary four.

Table 2: Knowledge of COVID-19 among the Pupils

Item	No Freq. (%)		Yes Freq. (%)		Total Freq. (%) N=400
	Public n=200	Private n= 200	Public n=200	Private n=200	
Heard of COVID-19	0 (0.0)	0 (0.0)	200 (100.0)	200 (100.0)	400 (100.0)
Transmission/Spread of COVID-19					
Cough	30 (15.0)	11 (5.5)	170 (85.0)	189 (94.5)	400 (100.0)
Sneezing	37 (18.5)	12 (6.0)	163 (81.5)	188 (94)	400 (100.0)
Talking/Shouting	68 (34.0)	45 (22.5)	132 (66)	155 (77.5)	400 (100.0)
Singing	129 (64.5)	143 (71.5)	71 (35.5)	57 (28.5)	400 (100.0)
Shaking hands	47 (23.5)	26 (13)	153 (76.5)	174 (87.0)	400 (100.0)
Touching the mouth, nose or eyes	78 (39.0)	37 (18.5)	122 (61.0)	163 (81.5)	400 (100.0)
Through water	138 (69.0)	156 (78.0)	62 (31.0)	44 (22.0)	400 (100.0)
Through food	138 (69.0)	154 (77.0)	62 (31.0)	46 (23.0)	400 (100.0)
Signs and Symptoms of COVID-19					
Cough	38 (19.0)	28 (14.0)	162 (81)	172 (86)	400 (100.0)
Runny nose	54 (27.0)	41 (20.5)	146 (73.0)	159 (79.5)	400 (100.0)

Fever	70 (35.0)	50 (25.0)	130 (65.0)	150 (75.0)	400 (100.0)
Pain on swallowing/ Sore throat	77 (38.5)	62 (31.0)	123 (61.5)	138 (69.0)	400 (100.0)
Difficulty in breathing	89 (44.5)	83 (41.5)	110 (55.0)	118 (59.0)	400 (100.0)
Abdominal pain	86 (43.0)	99 (49.5)	114 (57.0)	101 (50.5)	400 (100.0)
Headache	83 (41.5)	76 (38.0)	117 (58.5)	124 (62.0)	400 (100.0)
Sneezing	70 (35.0)	84 (42.0)	113 (56.5)	133 (66.5)	400 (100.0)

Table 2 shows the pupils' knowledge of COVID-19. With regards to the ways COVID-19 can spread, 85% and 94.5% of public and private schools' pupils respectively got it right for cough, 81.5% and 94% of public and private schools' pupils respectively got it right for sneezing, while 66% and 77.5% of public and private schools' pupils respectively got it right for talking or shouting.

In terms of the ways COVID-19 can manifest or present in someone that has it, 81% and 86% of public and private schools' pupils respectively got it right for cough, 73% and 79.5% of public and private schools' pupils respectively got it right for runny nose, 55% and 59% of public and private schools' pupils respectively got it right for difficulty in breathing.

Table 3: Comparison of Pupils' Knowledge of COVID-19

School Type	Knowledge of COVID-19			Total Freq. (%) N = 400	Statistics
	Poor Freq. (%)	Moderate Freq. (%)	Good Freq. (%)		
Public n = 200	59 (29.5)	46 (23.0)	95 (47.5)	200 (100)	$\chi^2 = 3.172$ df = 2 p = 0.205
Private n = 200	45 (22.5)	44 (22.0)	111 (55.5)	200 (100)	
Total N = 400	104 (26.0)	90 (22.5)	206 (51.5)	400 (100)	

Table 3 showed that 47.5% of the pupils in public primary schools had good knowledge of COVID-19, compared to 55.5% of the pupils in private primary schools; and this difference was not statistically significant ($p = 0.205$). Hence,

the null hypothesis that there is no statistically significant difference in the knowledge of COVID-19 among the public and private schools' pupils was not rejected

Table 4: Preventive Practices of Pupils against COVID-19

Practices	No Freq. (%) N = 400		Yes Freq. (%) N = 400		Total Freq. (%) N=400
	Public n=200	Private n= 200	Public n=200	Private n=200	
Preventive practices of the pupils					
Handwashing	21 (10.5)	12 (6.0)	179 (89.5)	188 (94.0)	400 (100.0)
Wearing a facemask	20 (10.0)	31 (15.5)	180 (90)	189 (94.5)	400 (100.0)
Wearing a face shield	99 (49.5)	63 (31.5)	101 (50.5)	137 (68.5)	400 (100.0)
Using a hand sanitizer	8 (4.0)	13 (6.5)	162 (81)	187 (93.5)	400 (100.0)
Social distancing	59 (29.5)	24 (12.0)	141 (70.5)	176 (88.0)	400 (100.0)
Not touching the eyes, nose and mouth	94 (47.0)	84 (42.0)	106 (53.0)	116 (58.0)	400 (100.0)
Coughing into the elbows instead of the hands	73 (36.5)	52 (26.0)	127 (63.5)	148 (74.0)	400 (100.0)
What will you do if you or your classmate falls sick in school?					
Tell my classmate	192 (96.0)	194 (97.0)	8 (4.0)	6 (3.0)	400 (100.0)
Tell my teacher or the school head	14 (7.0)	10 (5.0)	186 (93.0)	190 (95.0)	400 (100.0)
Tell my daddy	175 (87.5)	191 (95.5)	25 (12.5)	9 (4.5)	400 (100.0)
Tell my mummy	167 (83.5)	185 (92.5)	33 (16.5)	15 (7.5)	400 (100.0)
Will not do anything	198 (99.0)	199 (99.5)	2 (0.5)	1 (0.5)	400 (100.0)
Don't know	197 (98.5)	199 (99.5)	3 (1.5)	1 (0.5)	400 (100.0)
Other preventive practices					
Exchanging or	180 (90.0)	190 (95.0)	20 (10.0)	10 (5.0)	400 (100.0)

sharing facemask with someone else					
Personal hand sanitizer	143 (71.5)	110 (55.0)	57 (28.5)	90 (45.0)	400 (100.0)

Table 4 shows the pupils' preventive practices against COVID-19 and reports that 89.5% and 94% of public and private schools' pupils respectively said they have been practicing regular handwashing, 90% and 94.5% of public and private schools' pupils respectively said they have been wearing their facemasks, 81% and 93.5% of public and private schools' pupils respectively said they have been using a hand sanitizer, while 70.5% and 88% of public and private schools' pupils respectively said they have been practicing social distancing.

In terms of what the pupils will do if they or their classmate falls sick in school, 93% and 95% of public and private schools' pupils respectively said they would tell their class teacher or school head. In addition, 10% and 5% of public and private schools' pupils respectively said they had exchanged or shared their facemasks with other pupils, while 28.5% and 45% of public and private schools' pupils respectively said they have personal hand sanitizers which they bring to school.

Table 5: Comparison of the Pupils' Preventive Practices against COVID-19

School Type	Preventive Practice against COVID-19			Total Freq. (%) N = 400	Statistics
	Poor Freq. (%)	Average Freq. (%)	Good Freq. (%)		
Public n = 200	42 (21.0)	62 (31.0)	96 (48.0)	200 (100)	$\chi^2=27.446$ df = 2 *p<0.001
Private n = 200	14 (7.0)	42 (21.0)	144 (72.0)	200 (100)	
Total N = 400	56 (14.0)	104 (26.0)	240 (60.0)	400 (100)	

*Significant.

Table 5 showed that 48% of the pupils in public primary schools had good preventive practices against COVID-19, compared to 72% of the pupils in private primary schools; and this difference was statistically significant ($p < 0.001$). Hence,

the null hypothesis that there is no statistically significant difference in the knowledge of COVID-19 among the public and private schools' pupils was rejected.

Table 6: Barriers to the Use of the COVID-19 Preventive Measures by the Pupils

Barriers	Frequency N = 400	Percentage (%)
Face Mask		
No barrier	9	2.2
It is not always available	13	3.3
I don't like wearing it	76	19.0
Sometimes, I forget to wear it	141	35.3
Difficulty in breathing	161	40.3
Handwashing		
The water is not always clean	12	3.0
Too many people due to few handwashing points	18	4.5
Soap is not always available	21	5.3
The handwashing point is far from my class	21	5.3
Water is not always available	56	14.0
Sometimes, I forget	124	31.0
No barrier	148	37.0
Face shield		
I don't see clearly when I wear it	24	6.0
Sometimes, I forget to wear it	24	6.0
I don't like wearing it	62	15.5
No barrier	93	23.2
It is not always available	197	49.3
Hand Sanitizer		
The available one is far from my class	5	1.3
I don't like the odour	42	10.5
Sometimes, I don't feel like using it	51	12.8
Sometimes, I forget to use it	67	16.8
It is not always available	106	26.5
No barrier	129	32.2

In terms of the barriers to the use of the COVID-19 preventive measures, table 6 shows that for the face mask, 3.3% of the pupils said it is not always available, while 40.3% said they experience difficulty in breathing when they wear it; for handwashing, 14% said water is not always available, while 31% said they sometimes forget. Regarding the use of the face shield, 6% said they do not see clearly when they wear it, while 49.3% said it is not always available; for the hand sanitizer, 16.8% said they sometimes forget to use it, while 26.5% said it is not always available.

Discussion

A little above half (51.5%) of the pupils in this study had good knowledge of COVID-19, with a higher percentage among pupils in the private primary schools. This may be because the pupils were not adequately educated about COVID-19, or they did not fully understand the information passed across to them due to their age range. Further interaction with the teaching and

non-teaching staff of the schools showed that more sensitization was carried out in the private schools than in the public schools, a possible reason why the private school pupils had higher knowledge of COVID-19 in this study.

Another factor that may have led to this finding was the Bloom's cut off points that were used to categorise the pupils' knowledge which fixed good knowledge and 80% and above. This study may have recorded a higher level of good knowledge of COVID-19 if a lower cut-off point was chosen (say 70%). However, Bloom's cut off points were considered more appropriate for this study considering the severity of the disease and the concern it generated. All the same, a much higher percentage of good knowledge of COVID-19 among the pupils would have been more ideal as majority of the pupils were expected to have good knowledge of COVID-19. This is also expected if there is an outbreak of any communicable disease.

The percentage of pupils who had good knowledge of COVID-19 in this study was lower than the percentage of respondents with good knowledge of COVID-19 found in some related Nigerian studies.^{19,20} The difference may be because these studies were carried out among secondary school students who are naturally expected to be more knowledgeable on COVID-19 than primary school pupils.

Also, the result on the knowledge of COVID-19 in this study was lower than what was reported in a similar study carried out in Ethiopia,³² but similar to the result obtained from a Malaysian study.³³ The Ethiopian study was done among secondary school students, while the Malaysian study was done among primary school pupils. These are possible reasons for the difference and similarity noted between this study and the reference studies.

This study revealed that three-fifths of the pupils had good preventive practice against COVID-19. Just like their

knowledge, a higher proportion of the private pupils had good preventive practices against COVID-19 than the public pupils, and the difference was significant. This may be because the private school heads made more efforts to provide the preventive measures in their schools. Consequently, the private schools had more preventive measures in place than the public schools. Also, the private pupils had been sensitised on COVID-19 more than their counterparts in the public schools.

In addition, the proportion of pupils with good preventive practices against COVID-19 was higher than the proportion of pupils with good knowledge of COVID-19. This may be due to the fact that the pupils were actively engaging in the preventive practices against COVID-19 at the time this study was carried out as they were compelled to do so, with punitive measures in place if they failed to do so. Also, some of the pupils were not knowledgeable on the transmission and

manifestation of COVID-19 (which were the main thrusts of the knowledge questions) despite the fact that they were actively engaging in the preventive practices. These factors may have resulted in the mismatch between the pupils' knowledge of COVID-19, and the preventive practices against it. Furthermore, the level of understanding of the pupils due to their age may have undermined their responses, especially on the knowledge of COVID-19.

The findings from this study on the pupils' preventive practices were at variance (lower) with the results obtained from the study carried out in Ogun State, Nigeria.³⁴ This study was also carried out among primary school pupils. The variance may be due to the different study locations and varying levels of availability of the preventive measures in the schools among the two states involved (Ogun and Osun).

The result of the preventive practice of the pupils in this study also slightly differed (lower) from the results obtained from a

similar study carried out in Enugu, Nigeria which reported that 69.2% of the respondents had overall good preventive practice.²¹ This difference may be because the study in Enugu was carried out among secondary school students. The same difference was also noted in similar Ghanaian studies in which there was a higher percentage of respondents with good preventive practices against COVID-19.^{35,36} These studies were also carried out among secondary school students.

The percentage of good COVID-19 preventive practices obtained in this study was higher than what was reported by a related study carried out in China.³⁷ The Chinese study was also carried out among primary school pupils. This difference may have resulted because the Chinese study was carried out in February, 2020 when there was still a lot of scepticism about the existence of the disease, and not much was known about it then, so a lot of people were not convinced at that time why they

should engage in the preventive practices against COVID-19.

Conclusion

Half of the pupils had good knowledge of COVID-19. There is a need to increase the knowledge of the pupils on COVID-19 to ensure that they have the right information and having the right information will lead to doing the right things to prevent COVID-19. Less than two-thirds of the pupils had good preventive practice against COVID-19. This has also buttressed the need for more efforts to be made by the relevant stakeholders to ensure that the level of preventive practice against COVID-19 among the pupils is improved to the desired level, as prevention is key to the control of COVID-19. These measures will also be very useful in the prevention and control of any other communicable disease that may result in an outbreak in the future.

Recommendations

The Osun State government and the proprietors/school heads of private schools should ensure that pupils in primary schools are adequately and continuously educated on the prevention and control of communicable diseases. The information given should be such that it is modified to their level for proper understanding. The school authorities should also ensure that infection prevention and control measures are adequately provided in all schools and at all times.

References

1. Roknuzzaman A, Sarker R, Nazmunnaahar M, Shahriar M, Mosharrafa R, Islam M. The WHO has Declared COVID-19 is No Longer a Pandemic-Level Threat: A Perspective Evaluating Potential Public Health Impacts. Clin Pathol [Internet]. 2024 Jan 22 [cited 2024 Sep 24];17(1):26–32. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10804921/>

2. Wise J. Covid-19: WHO declares end of global health emergency. *BMJ* [Internet]. 2023 May 9 [cited 2024 Mar 4];381(4):1041–50. Available from: <https://www.bmj.com/content/381/bmj.p1041>
3. Cunningham N, Hopkins S. Lessons identified for a future pandemic. *J Antimicrob Chemother* [Internet]. 2023 Nov 23 [cited 2024 Sep 24];78(2):43–9. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10666982/>
4. Akinola O, Olawade DB, David-Olawade AC. What lessons can African nations learn from the COVID-19 pandemic? *Tropical Medicine and Health* [Internet]. 2022 Nov 28 [cited 2024 Sep 24];50(11):89–95. Available from: <https://doi.org/10.1186/s41182-022-00480-x>
5. Heanoy EZ, Nadler EH, Lorrain D, Brown NR. Exploring People’s Reaction and Perceived Issues of the COVID-19 Pandemic at Its Onset. *Int J Environ Res Public Health* [Internet]. 2021 Oct 14 [cited 2024 Sep 25];18(20):10796. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8535849/>
6. Zhang J. People’s responses to the COVID-19 pandemic during its early stages and factors affecting those responses. *Humanit Soc Sci Commun* [Internet]. 2021 Feb 3 [cited 2024 Sep 25];8(1):1–13. Available from: <https://www.nature.com/articles/s41599-021-00720-1>
7. Reiersen J, Romero-Hernández M, Adán-González R. Government Reactions, Citizens’ Responses, and COVID-19 around the World. *Int J Environ Res Public Health* [Internet]. 2022 May 6 [cited 2024 Sep 25];19(9):5667–79. Available from:

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9100078/>
8. Rosenthal A, Waitzberg R. The challenges brought by the COVID-19 pandemic to health systems exposed pre-existing gaps. *Health Policy Open* [Internet]. 2022 Dec 15 [cited 2024 Sep 25];4(6):100088–99. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9753444/>
 9. Filip R, Gheorghita Puscaselu R, Anchidin-Norocel L, Dimian M, Savage WK. Global Challenges to Public Health Care Systems during the COVID-19 Pandemic: A Review of Pandemic Measures and Problems. *J Pers Med* [Internet]. 2022 Aug 7 [cited 2024 Sep 25];12(8):1295–308. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9409667/>
 10. Rothbart MF, Karáth K, Ndhlovu L. How covid-19 has exposed the weaknesses in rural healthcare. *BMJ* [Internet]. 2022 Feb 25 [cited 2024 Sep 25];376(2):232–44. Available from: <https://www.bmj.com/content/376/bmj.o232>
 11. Tessema GA, Kinfu Y, Dachew BA, Tesema AG, Assefa Y, Alene KA, et al. The COVID-19 pandemic and healthcare systems in Africa: a scoping review of preparedness, impact and response. *BMJ Global Health* [Internet]. 2021 Dec 1 [cited 2024 Sep 25];6(12):7179–90. Available from: <https://gh.bmj.com/content/6/12/e007179>
 12. Dancer SJ. Covid-19 exposes the gaps in infection prevention and control. *Infect Dis Health* [Internet]. 2020 Nov [cited 2024 Sep 25];25(4):223–6. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7437566/>

13. Harun MdGD, Anwar MMU, Sumon SA, Hassan MZ, Haque T, Mah-E-Muneer S, et al. Infection prevention and control in tertiary care hospitals of Bangladesh: results from WHO infection prevention and control assessment framework (IPCAF). *Antimicrobial Resistance & Infection Control* [Internet]. 2022 Oct 6 [cited 2024 Sep 25];11(1):125–35. Available from: <https://doi.org/10.1186/s13756-022-01161-4>
14. Lowe H, Woodd S, Lange IL, Janjanin S, Barnet J, Graham W. Challenges and opportunities for infection prevention and control in hospitals in conflict-affected settings: a qualitative study. *Conflict and Health* [Internet]. 2021 Dec 20 [cited 2024 Sep 25];15(1):94–105. Available from: <https://doi.org/10.1186/s13031-021-00428-8>
15. Olalekan AW, Adeola E. How prepared are Nigerian schools for ebola virus disease prevention and control? *Ann Glob Health*. 2014;80(6):452–7.
16. Nwajiuba CA, Ogunji CV, Uwakwe RC, David EI. Handwashing Practices Among Children in Public Schools in Imo State, Nigeria. *Global Journal of Health Science* [Internet]. 2019 Oct 31 [cited 2024 Sep 27];11(14):15–28. Available from: <https://doi.org/10.5539/gjhs.v11n14p15>
17. Sanni UA, Offiong UM, Anigilaje EA, Airede KI, Imam A. A pre-COVID-19 assessment of aspects of the school health programme in some selected Nigerian primary schools: implications for school re-opening during the COVID-19 pandemic in developing country contexts. *BMC Public Health* [Internet]. 2021 Jun 24 [cited 2024 Sep 27];21(1–14):1214. Available from:

- <https://doi.org/10.1186/s12889-021-11258-x>
18. Osuchukwu NP, Alor AR, Okonkwo IN, Mba CC. AWARENESS AND HEALTH INFORMATION ON HANDWASHING AND HYGIENE FOR HEALTH SUSTAINABILITY IN PRIMARY SCHOOLS. *African Journal of Educational Management, Teaching and Entrepreneurship Studies* [Internet]. 2021 [cited 2024 Sep 27];4(1):117–26. Available from: <https://www.ajemates.org/index.php/ajemates/article/view/90>
 19. Umar S, Abdulkadir AD, Devi K. Knowledge and practices toward prevention of COVID-19 among students of Baptist High School Lafia, Nigeria. *Adesh Univ J Med Sci Res* [Internet]. 2022 Jun 20 [cited 2024 Sep 27];4(1):33–7. Available from: <https://aujmsr.com/knowledge-and-practices-toward-prevention-of-covid-19-among-students-of-baptist-high-school-lafia-nigeria/>
 20. Idris S, Akorede A, Isiaq A. ASSESSMENT OF KNOWLEDGE AND PRACTICE OF COVID-19 PREVENTION STRATEGIES AMONG SECONDARY SCHOOL STUDENTS IN SAMARU, ZARIA. *Global Journal of Health Related Researches*. 2022 Jun 13;4(1):16–23.
 21. Aronu AE, Chinawa AT, Ossai EN, Onukwuli VO, Chinawa JM. COVID-19: Knowledge of Mode of Spread and Preventive Practices among College Adolescents in Nigeria. *Journal of Tropical Pediatrics* [Internet]. 2021 Feb 1 [cited 2024 Sep 27];67(1):2–13. Available from: <https://doi.org/10.1093/tropej/fmab002>
 22. Jaiyesimi B, Bamitale T, Diyaolu B, Alabi K. The Nigerian youth knowledge, Attitude and Practice (KAP) towards the national drive against the Spread of COVID-19: An

- online cross-sectional Survey. *F1000Res*. 2022;11(1):1353–68.
23. Ogolodom MP, Mbaba AN, Okon IA, Eze JC, Umoren EB, Okankwu EA, et al. Student's Knowledge, Perception and Approaches towards Covid-19 Preventive Measures in PAMO University of Medical Sciences, Port Harcourt, Nigeria. *African Journal of Health Sciences* [Internet]. 2022 Dec 5 [cited 2024 Sep 27];35(4):401–16. Available from: <https://www.ajol.info/index.php/ajhs/article/view/237600>
 24. Reuben RC, Danladi MMA, Saleh DA, Ejembi PE. Knowledge, Attitudes and Practices Towards COVID-19: An Epidemiological Survey in North-Central Nigeria. *J Community Health* [Internet]. 2021 Jun 1 [cited 2024 Sep 27];46(3):457–70. Available from: <https://doi.org/10.1007/s10900-020-00881-1>
 25. Habib MA, Dayyab FM, Iliyasu G, Habib AG. Knowledge, attitude and practice survey of COVID-19 pandemic in Northern Nigeria. *PLOS ONE* [Internet]. 2021 Jan 14 [cited 2024 Sep 27];16(1):0245176–90. Available from: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0245176>
 26. Owhonda G, Maduka O, Nwadiuto I, Tobin-West C, Azi E, Ojimah C, et al. Awareness, perception and the practice of COVID-19 prevention among residents of a state in the South-South region of Nigeria: implications for public health control efforts. *International Health* [Internet]. 2022 May 1 [cited 2024 Sep 27];14(3):309–18. Available from: <https://doi.org/10.1093/inthealth/ihab046>
 27. Nnama-Okechukwu CU, Chukwu NE, Nkechukwu CN. COVID-19 in Nigeria: Knowledge and compliance

- with preventive measures. *Social Work in Public Health* [Internet]. 2020 Sep 1 [cited 2024 Sep 27];35(7):590–602. Available from: <https://doi.org/10.1080/19371918.2020.1806985>
28. Brooks S. Comparing Two Proportions - Sample Size [Internet]. Select Statistical Consultants. [cited 2024 Sep 28]. Available from: <https://select-statistics.co.uk/calculators/sample-size-calculator-two-proportions/>
 29. Taylor M, Leonard J, Charles I. Prevention and Control of Ebola Virus Disease in Liberia: Health Education to the rescue. Monrovia; 2015.
 30. Yarcuri C. How to adjust sample size for non-response in cross sectional studies? [Internet]. ResearchGate. [cited 2024 Sep 28]. Available from: <https://www.researchgate.net/post/How-to-adjust-sample-size-for-non-response-in-cross-sectional-studies>
 31. Feleke BT, Wale MZ, Yirsaw MT. Knowledge, attitude and preventive practice towards COVID-19 and associated factors among outpatient service visitors at Debre Markos compressive specialized hospital, north-west Ethiopia, 2020. *PLoS One* [Internet]. 2021 Jul 15 [cited 2024 Sep 30];16(7):e0251708-20. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8282282/>
 32. Getawa S, Aynalem M, Bayleyegn B, Adane T. Knowledge, attitude and practice towards COVID-19 among secondary school students in Gondar town, Northwest Ethiopia. *PLoS One*. 2022;17(5):0268084–96.
 33. Ganaprakasam C, Humayra S, Ganasegaran K, Kuppusamy E, Karikalan B. KNOWLEDGE, ATTITUDE, AND PRACTICE

- REGARDING COVID-19 AMONG
PRIMARY SCHOOL STUDENTS
IN KEDAH, MALAYSIA: A
CROSS-SECTIONAL STUDY.
Malaysian Journal of Public Health
Medicine. 2021 Dec 28;21(6):49–59.
34. E.N. D, A.M. A. Evaluation of Covid-
19 Prevention and Control Protocol
Compliance Among Pupil's in Ikenne
Local Government Area, Ogun State.
African Journal of Health, Nursing
and Midwifery. 2021 Jun 12;4:74–91.
35. Dubik S, Amegah K. Resumption of
School amid the COVID-19
Pandemic: A Rapid Assessment of
Knowledge, Attitudes, and Preventive
Practices among Final-Year Senior
High Students at a Technical Institute
in Ghana. Education Research
International. 2021 Apr 1;2021(4):8–
21.
36. Apanga PA, Kamal Lettor IB,
Akunvane R. Practice of COVID-19
Preventive Measures and Its
Associated Factors among Students
in Ghana. Am J Trop Med Hyg
[Internet]. 2021 Feb [cited 2024 Sep
30];104(2):526–31. Available from:
[https://www.ncbi.nlm.nih.gov/pmc/ar
ticles/PMC7866337/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7866337/)
37. Chen X, Ran L, Liu Q, Hu Q, Du X,
Tan X. Hand Hygiene, Mask-Wearing
Behaviors and Its Associated Factors
during the COVID-19 Epidemic: A
Cross-Sectional Study among
Primary School Students in Wuhan,
China. Int J Environ Res Public
Health. 2020 Apr 22;17(8):2893–
3006.