Practice of COVID-19 Preventive Measures among Young People-The Importance of Information Provision.

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Abstract

Background: In a period where the world is faced with the COVID-19 pandemic that threatens the core of how we relate and participate in our routine activities, young people, who constitute a significant population are important to reducing the spread of the infection. However, there is little or no information documented about the practice of COVID-19 preventive measures among the younger population.

Objective: In this study, we assessed the knowledge, attitudes and compliance with COVID-19 preventive measures among individuals 10-24 years in Nigeria.

Methods: We conducted a cross sectional study among young people (10-24 years) using a validated questionnaire. Data was collected through a web-based survey using REDCap due to the government-imposed lockdown.

Results: The mean age of participants was 17.4□4.8. All of them were aware of the COVID-19 pandemic and the most common source of information on COVID-19 was social media. A common reason for choice of source of information was 'convenience'. About 47.8% and 36.0% of the respondents had good knowledge and attitude respectively and 36.8% had good compliance with the prevention and control measures. Adolescents who sought information recently, had good knowledge and attitude, were more likely to comply with COVID-19 preventive and control measures.

Conclusion: Findings highlight the need for additional interventions to improve knowledge about COVID-19 among young people. This would contribute towards improving attitudes and compliance to prevention measures among this group.

Keywords: Young people, COVID-19 preventive measures, Information seeking behavior.

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Introduction

COVID-19 is a disease caused by a newly identified coronavirus called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It was first identified in Wuhan city, China in 2019 and first reported by the World Health Organization (WHO) on the 31st December 2019. It subsequently spread worldwide after being identified in China, ensuing in the current pandemic [1]. Total cases of infection globally as of 9th January, 2021 are 89,504,461 with a mortality of 1,924,810. Even though the numbers of infected people keeps going up, a recovery of 64,144,385 has been recorded. COVID-19 patients may be asymptomatic or develop flu-like symptoms, with fever, dry cough, tiredness and shortness of breath as key symptoms. Infection by SARS-CoV-2 in humans occurs mainly through air droplets, close contact with infected persons, especially mucus membranes secretions from nose, mouth, or eyes, contaminated surfaces, and some studies suggest digestive tract transmission [2].

The World Health Organization declared a Public Health Emergency of International Concern (PHEIC) for the coronavirus outbreak on 30th January, 2020 and a pandemic on 11 March 2020 [3]. Initial protective measures and guidelines including closure of public places, halting of public transportation, isolation and management of infected persons were announced. At the time of the WHO pronouncement of COVID-19 as a global public health challenge, Nigeria had not reported any case of the virus. Because of this, many Nigerians saw the virus as a distant white man's infirmity, a big man's disease, and believed it could not spread to Nigeria for reasons such as the hot and humid weather conditions [4]. The government hesitated in the adoption of the initial preventive measures and set guidelines leading to an undue exposure of the citizens to the virus. This was believed to be largely due to imminent hunger and the fact that a significant percentage of the population rely on daily remuneration to pay their bills and feed [4].

Within few weeks after the confirmation of the index COVID-19 case in Lagos on February 20 2020, the figures rose and gradually increased in the country, mainly in Lagos and FCT. The Nigerian Government then declared lockdown all over the country. Everyone with the exception of some emergency services were instructed to stay at home to avoid contact with others, prevention of inter-state transport, the closing of public

spaces (such as religious centres, markets, cinemas, schools etc), and isolation and care of infected people and suspected cases [5].

These preventive measures brought about changes in general daily activities affecting all age groups. For the adults, it looked like a time to take a break from their regular work life and have some family time. For the young people however, it was hard to accept, as they could not go to school and meet with their friends. Usually, young people spend much of their time in school or other social contexts, such as churches/mosques and recreational spaces [6]. Due to the lockdown, they had to compulsorily stay at home, all day for months, confined to physical relationships mostly with adults that they live with while relationships with peers were maintained mostly online.

Young peoples' perception of the virus was greatly influenced by the adults they lived with and the information they get online [7]. The prolonged online presence exposed adolescents to all kinds of positive and negative information shared on social media platforms, for example, misinformation concerning the source of the virus, fake cures etc. Anecdotal reports show that some young people were exposed to or lived with adults who believed all they needed to do to stay safe was pray and participate in spiritual activities. All these could have influenced their search for information on COVID-19 and consequently, their practice of stipulated preventive measures.

Beyond enforcing lockdown, government agencies, non-governmental and not-for-profit organizations provided information on COVID-19 and preventive and control measures for COVID-19. This information was provided on government dedicated websites and also on social media platforms. According to research findings on information seeking behaviours, young people are more likely to skim information available as compared to actively engaging the information [8–10]. That is, young people may be more likely to seek for information through social media as compared to the government dedicated websites. Hence the importance of providing specific and targeted information for young people. Although, young people have been assumed to be vast in ability to use mobile technology for information, studies also show that there are variations in these ability and skills [11] and that young people will rather conduct a 'surface level' research than an in-depth analysis and engagement [9]. Also, anecdotal reports have shown that young people feel less vulnerable to COVID-19, therefore they may be less likely to take preventive and control measures seriously. However, there are few studies that have considered the knowledge, attitude and compliance to COVID-19 preventive methods among young people. A study in the Northern part of Nigeria reported that young people were likely to seek information on COVID-19 via social media as compared to via dedicated government websites [7].

To ensure the ultimate success of the lockdown, the acceptance and practice of individuals to the preventive measures is important, individuals are more likely to be compliant with measures if they believe they may be susceptible to the disease [12]. There have been studies that measured the knowledge, attitude and practice of Nigerians towards COVID-19. A public opinion poll conducted by NOIPolls reports the knowledge and perception of Nigerians towards COVID-19. This poll revealed that about 86% of Nigerians were aware of COVID-19, 26% believed they were immune to COVID-19 and 50% had information on how to protect themselves [13]. In this poll, adolescents younger than 18years (10-17years) were not captured, therefore we do not know the perception, attitude and knowledge levels among this population. A study of adolescents' attitude towards COVID-19 and their perception of the measures implemented (such as social/physical distancing) may help in planning better responses targeted at adolescents and young people during a period like this. Therefore, this study assessed knowledge, attitudes and compliance with COVID-19 preventive measures among individuals 10-24 years in Ibadan, Oyo state, Nigeria

Materials and Methods

Study design and population

This was a cross sectional study conducted among young people (10-24 years). Data was collected through a web-based survey due to the government-imposed lockdown. The study was restricted to young people in Ibadan. The survey was opened for a period of three weeks from June 15, 2020 to July 3rd, 2020.

Data collection procedure

The authors designed a semi-structured questionnaire on REDCap for data collection. A link was generated from REDCap and was sent out to invite participants through existing WhatsApp groups for adolescents and young people, twitter pages and Instagram posts. The questionnaire was preceded by a brief introduction to the purpose of the study, a declaration of confidentiality and a declaration of willingness to participate in the study. A total of 442 potential respondents were approached via WhatsApp groups. Of this number, 223 filled the questionnaire, giving a response rate of 50.5%. However, only 136 forms were eligible to be included in this analysis. For a form to be included in the analysis, respondent had to have completely answered all questions on knowledge, attitude and practice of COVID-19 prevention.

Measures and data management

Socio-demographic characteristics of respondents including gender, age, educational level, type of school, family wealth, living arrangement, and family type. Measures for Knowledge, attitude and practice were adapted from an existing study [14]. Respondents' knowledge, of COVID-19 was measured through a 12-item scale. For respondents' knowledge of COVID-19, each correct response was scored "1" while each incorrect response attracted a score of zero. A composite score was computed by adding the scores for each respondent across the items. The minimum and maximum knowledge scores that could be obtained were 0 and 12. The knowledge of respondents was then dichotomized as 'poor' and 'good' knowledge. Poor knowledge was a score of between 0 and 9, while good knowledge was a score of 10 and above.

Respondents' attitude towards COVID-19 control measures were measured using a 6-item instrument with each item measured on a Likert scale that ranged from 0 and 3 (strongly disagree, disagree, agree, strongly agree), A composite score was also computed for attitude with minimum and maximum obtainable scores of 0 and 18 respectively. Attitude was then dichotomized into poor attitude (0-10) and good attitude (11-18).

Respondents' COVID-19 prevention practices were assessed using a 5-item instrument with responses to each question measured on a scale between 0 and 2 (Never, sometimes, and always). A composite score was computed for practice with a minimum and maximum score of 0 and 10 respectively for practice. Practice was also dichotomized into poor practice (0-6) and good practice (7-10) using the respondents' mean score as the cut-off point. Practice was the major outcome measure for this study.

Other variables measured included respondents' information seeking behaviour. Young people were asked if they had ever sought for information on COVID-19, and if they had sought for information in the recent week. Respondents' sources of information and reasons for searching for information from those sources was also reported.

Analysis

The forms marked as 'completed' were downloaded from REDCap [15] and exported to SPSS version 23. Data analysis comprised of descriptive statistics including frequency distribution, percentages and mean scores. Bivariate analysis including chi-square was conducted to test association between socio-demographic variables and the outcome measure (practice or compliance). Binary logistic regressions analysis was conducted to identify related factors at significance level of $p<0.05$.

Ethics

Ethical approval was obtained from Oyo State Ethics Review Committee and consent statement was included in the questionnaire only those ticking yes could proceed to fill the questionnaire. Adolescents younger than 18years were to request a parent to click on the consent button before proceeding to the survey.

Results

Socio-demographic characteristics of respondents

Table 1 shows the socio-demographic characteristics of respondents. The average age of respondents was 17.4 ± 4.8 years with more of the respondents (47.1%) between the ages of 20-24years. More than half (61.8%) of the respondents were females. About 39.7% were secondary school students while others had completed secondary school. Among adolescents who indicated they were currently in secondary schools; an equal proportion were from public and private schools and 46.3% had access to online classes. As regards family characteristics, majority (91.2%) were from a monogamous home, more than half (56.6%) perceived that their family wealth was same as others and about 74.3% lived with both parents.

Information seeking about COVID-19

Table 2 shows the pattern of information seeking about COVID-19 among respondents. About 73.9% of the respondents had ever searched for information about COVID 19, while about 52.5% of these had recently (that is within two weeks preceding the data collection date) sought for information on COVID-19. As regards source of information, 63.4% obtained information from different social media platforms. Social media sources consulted by respondents included Twitter, Facebook and WhatsApp. Twitter (40.4%) was the most consulted social

Table 1. *Socio-demographic characteristics.*

Variables		Frequency (%)	
Gender	Male	52 (38.2)	Mean = 17.4 ± 4.8
	Female	84 (61.8)	
Age	7-14	42 (30.9)	
	15-19	30 (22.1)	
	20-24	64 (47.1)	
Educational level	Secondary school	54 (39.7)	
	Tertiary institution	51 (37.5)	
	Post tertiary (NYSC)	17 (12.5)	
	Postgraduate	9 (6.6)	
	Awaiting admission	5 (3.7)	
Type of school	Public sec school	27 (50.0)	
	Private sec school	27 (50.0)	
Online classes	Yes	25 (46.3)	
	No	29 (53.7)	
Perception of family wealth	Same as others	77 (56.6)	
	Better than others	58 (42.6)	
	Worse than others	1 (0.7)	
Living arrangement	Both parents	101 (74.3)	
	Single parent	19 (14.0)	
	Guardian	16 (11.8)	
Family type	Monogamous	124 (91.2)	
	Polygamous	12 (8.8)	

media platform. When asked why they consulted their individual sources for COVID-19 information, about 37.7% and 29.5% of the respondents, declared that convenience and accuracy respectively, were the reasons they consulted the platforms for information.

Knowledge, attitude and practice of COVID-19 prevention and control methods

Table 3 presents respondents' knowledge, attitude and practice. Slightly less than half (47.8%) of the respondents had good knowledge of COVID-19. About 36.0% of respondents had a positive attitude towards COVID-19. About 36.8% of the respondents had good compliance with COVID-19 prevention and control measures. Table 4 presents factors associated with practice of COVID-19 preventive and control measures. Seeking information recently, knowledge and attitude were factors significantly associated with the practice of COVID-19 preventive measures among the respondents. Individuals with good knowledge and attitude were more likely to have good practice of COVID-19 preventive measures. Table 5 presents multivariate analysis of factors associated with the practice of COVID-19 preventive measures among young people. Recent search for information remained a significant factor for practice. Young people who had sought for information on COVID-19 within 2weeks prior to data collection, were 3 times more likely to practice COVID-19 preventive measures as compared to those who did not (AOR-2.9, CI: 1.05-7.90).

Discussion

This study reported young people's knowledge, attitudes and practice of COVID-19 prevention and control measures during the lockdown period. About 47.8% and 36.0% of the respondents had good knowledge and attitude respectively and 36.8% of the respondents had good practice of the prevention and control measures. Young people who sought for information 2 weeks prior to data collection were more likely to report good COVID-19 prevention and control practices.

In this study, although 73.9% of the respondents had accessed

Table 2. *Information about COVID-19.*

Variables		Frequency (%)
Ever sought information	Yes	61 (73.9)
	No	22 (26.1)
Recently[1] sought information	Yes	32 (52.5)
	No	29 (47.5)
Sources of information	Social media	52 (63.4)
	Parents	-18.3
	Specific websites	13 (15.9)
	Friends	2 (2.4)
[@]Social media sources	Twitter	21 (40.4)
	Facebook	10 (19.2)
	WhatsApp	9 (17.3)
	Instagram	9 (17.3)
	Telegram	3 (5.8)
Websites	Google search	7 (53.8)
	NCDC website	3 (23.1)
	WHO website	2 (15.4)
	News website	1 (7.7)
Reasons for choice of source	Convenience[2]	23 (37.7)
	Accuracy[3]	18 (29.5)
	Adequacy/variety of information	8 (13.1)
	Confidence/trust	4 (6.6)
	Friends	3 (4.9)
	Interesting	3 (4.9)
	Cheap	2 (3.3)

1Recent refers to within the past two weeks prior to data collection. 2Convinience as a theme included accessible, quick, easy to use, relatable and readily available. 3Accuracy as a theme included validated, reliable, updated regularly and credible. 2,3These were derived from the quantification of qualitative (open-ended) questions).

Table 3. *Knowledge, attitude and practice of COVID-19 prevention and control methods.*

Variables		Frequency (%)
Knowledge	Good	65 (47.8)
	Poor	71 (52.2)
Attitude	Good	49 (36.0)
	Poor	87 (64.0)
Practice	Good	50 (36.8)
	Poor	86 (63.2)

Table 4. *Factors associated with knowledge, attitude and practice.*

Factors	Practice	
	Good (%)	p-value
Sex		
Male	17 (32.7)	0.47
Female	33 (39.3)	
Age		
10-14	15 (35.7)	0.59
15-19	9 (30.0)	
20-24	26 (40.6)	
Educational level		
Secondary school	17 (31.5)	0.83
Tertiary school	22 (43.1)	
Postgraduate	3 (33.3)	
Awaiting admission	2 (40.0)	
Post tertiary (NYSC)	6 (35.3)	
Type of sec school		
Private	10 (37.0)	0.56
Public	7 (25.9)	
Online classes		
Yes	10 (40.0)	0.25
No	7 (24.1)	
Family wealth		
Same as others	28 (36.4)	0.55
Better than others	21 (36.2)	
Worse than others	1 (100)	
Living arrangement		
Both parents	34 (33.7)	0.43
Single parents	9 (47.4)	
Guardian	7 (43.8)	
Family type		
Monogamous	43 (34.7)	0.12
Polygamous	7 (58.3)	
Sought information – Ever		
Yes	38 (62.3)	0.21
No	10 (45.5)	
Sought information – Recent		
Yes	25 (73.5)	0.02*
No	23 (46.9)	
Knowledge		
Poor	14 (19.7)	0.00*
Good	36 (55.4)	
Attitude		
Poor	19 (21.8)	0.00*
Good	31 (63.3)	

Table 5. *Predictors of practice.*

Variable		OR	AOR#
Sought information – recent			
Yes	25 (73.5)	1	1
No	23 (46.9)	3.1 (1.22-8.09)*	2.9 (1.05-7.90)*
Knowledge			
Poor	14 (19.7)	5.1 (2.36-10.83)***	1.5 (0.55-4.18)
Good	36 (55.4)	1	1
Attitude			
Poor	19 (21.8)	6.2 (2.85-13.34)***	1.6 (0.60-4.11)
Good	31 (63.3)	1	
#Adjusted for age, gender, and educational level			

information on COVID-19, less than half had good general knowledge of COVID-19. A plausible explanation for this may be the development of young people's information seeking behaviour [8]. Young people are generally assumed to be experts when it comes to the use of mobile technology and are adept in finding information and using information as long as it is provided online. This assumption may have influenced general perceptions of their online-information seeking behaviours and the practice of the proposed behaviour. According to pre and post mobile-era studies, young people are more likely to be interested in 'surface-level' as against in-depth analysis of information [8,9]. The speed of retrieval and rapid assessment of quality are factors that characterize young people's information seeking behaviours [9]. That is, young people will likely seek information through an easily accessible platform that gives information swiftly and can be proclaimed trustworthy through a brisk assessment of the information. Young people have been said to lack the critical and analytical skills required to assess information, therefore, although, they rely heavily on search engines, they are more likely to do more of viewing than reading [10]. This may therefore explain why although majority of the young persons in this study sought information, only about a third have good knowledge.

Also, online skills and abilities differ among young people and these abilities influence their access to or willingness to seek information through online or mobile technology [11]. Therefore, young persons with more mobile technology and online skills and abilities may be able to access more information as compared to those who have little or no online skills or abilities.

Young people have also been reported to be more likely to seek information on-the-go when needed [9]. The increased affordability, mobility and ease of access to information provided by smartphones have amplified the 'just-in-time' information seeking behaviour among young people and reduced the need for in-depth analysis of accessed information. In this study, more of the respondents reported convenience (that is, accessible, quick, easy to use, relatable and readily available) as a major reason why they selected their source of information.

The assumptions around how savvy young people are with the use of mobile technologies and their use and access to the internet may have influenced the provision of information for young people in times such as this. An assumption that once an information is available on a website or on social media, it will be accessed by young people without considering their ability to engage the provided information, is an error that needs to be corrected if adequate and relatable information is to be provided to young people especially as regarded issues such as COVID-19.

The above may also explain why more young people in this study sought information via social media as compared to government dedicated websites. Other studies have also reported similar findings. A study among 10-25year olds in Asia revealed that young people mostly accessed information via social media as

against official government site for COVID-19 information [16]. Another study conducted in Northern Nigeria revealed similar findings. Most of the respondents reported social media as their major source of information on COVID-19 [7]. It is however difficult to conclude that the information from social media in this study were not from government social media handles as most of the government agencies providing information on COVID-19 were also active on social media during this period. All we can say is that young persons will rather obtain information from social media as compared to websites.

Creating short easily accessible information through social media may be a good approach to providing young people with needed information. However, ensuring engagement with information to positively influence practice of this information is also as important as ensuring the information is accessible. Given the likelihood of surface-level engagement with information, young people require information that is targeted, specific and tailored towards their needs. Providing transparent and factual information that encourages public engagement and participation has been suggested as a way to improve practice of COVID-19 preventive measure within the population [17,18].

In this study, the practice of COVID-19 preventive measures among young people was low. The knowledge of COVID-19, attitude towards known preventive measures and intentional search for information were significantly associated factors for the practice of COVID-19 preventive measures among young people. The better the knowledge and attitude of young people, the better their practice. This study also reported low knowledge and poor attitude towards COVID-19 preventive measures. Hence the low practice reported. In a similar study, a low level of understanding of crucial preventive measures of COVID-19 was reported among young people [16]. Another study among the general population reported a similarly poor knowledge attitude and practice of COVID-19 preventive measures, especially among young people [17]. However, a study among older population in Nigeria (18-35years) revealed a better knowledge and attitude among respondents [7]. Another study among young people with Type 1 Diabetes Mellitus also showed that young people with specific conditions may be more likely to practice COVID-19 safety measures [19].

The relationship between level of information an individual has and understands and their practice of a health promoting behaviour has been greatly researched over the years and the findings that more knowledge equals better practice have largely remained unchanged despite the significant changes in the conditions of livelihood and access to health services. According to the health belief model, for an individual to adopt a recommended behaviour, the benefits of the proposed actions must be perceived as outweighing the perceived barriers to the proposed actions. That is, an individual's perceived benefit of action must outweigh their perceived severity and susceptibility [12]. This is to say that to provide an information that is targeted at ensuring young people's practice of COVID-19 is improved, the suggested action must be communicated in such a way that they see that it is worth it. As earlier mentioned, short, precise messaging on social media may provide this motivation for adolescents. Earlier studies on other topics of interest among adolescents have shown that providing too complicated detailed information for young people may not be effective. For example, in a study about safe-sex, young people reported that scientific information does not articulate closely with everyday practice [20].

Further, information processing paradigm also suggest that the impact of a persuasive communication is mediated through three phases of message processing, namely – attention to message, comprehension of message and acceptance of content. That is, for an individual to be persuaded to imbibe a health promoting behaviour, the message provided must be in such a way that the individual is willing to pay attention to the message, is able to comprehend the content and accepts the content of the message. For young people to be able to adopt information and practices proposed for the prevention of COVID-19, it is important that the information provided is able to catch their attention, that is easily accessible, relatable and readily available – following the findings from this study, it must also be understandable and perceived as important to be accepted.

From the findings of this study, young people are more likely to practice COVID-19 preventive measures with increase in their knowledge and attitude towards the preventive measures. Using these findings, its agreement with other studies, the health belief model and information processing paradigms, we can postulate that the manner of the provision of information is an important factor in improving knowledge and attitude of young people and consequently their practice. However, because individuals are not passive actors in the development of healthy behaviours, it is important to ensure that there is adequate engagement of young people in developing information about their health.

Studies have suggested that honest open dialogue with the public, including young people could improve decision making to practice preventive measures proposed towards reducing the spread of COVID-19. A transparent and factual discussion that includes young people could facilitate their engagement with the information they 'view' on social media and improve the likelihood of practicing proposed preventive measures.

Conclusion

This study reports that the knowledge, attitude and practice of COVID-19 preventive measures are low among young people. Therefore, it is important that special attention be given to providing targeted and youth friendly information in an easily accessible, relatable and readily available manner. This in turn may improve their practice of proposed measures.

Limitations

This study used a web-based data collection approach. We acknowledge this as a limitation and thus do not over-generalize our findings. Our findings are however important as they contribute to the currently limited body of knowledge about COVID-19 related knowledge, attitudes and practices among young people. This is important for improving efforts to control the pandemic, especially as the second wave appears to be involving more young people than during the earlier phases of the pandemic.

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Author's Contributions

EA and AO conceptualized and designed the study. EA designed the questionnaire on REDCap and generated a link for the study, while OO disseminated and distributed the links to the existing groups. EA and AA downloaded the data and conducted analysis. AA wrote the first draft of the manuscript. All authors read and approved the final version of the manuscript.

Disclosure statement

The authors do not have any competing interest to declare.

Ethical compliance and Consent

Ethical approval was obtained from the Oyo State Research Ethics Review Board. A consent/assent page was created and the first to pop-up. Only consenting participants could proceed to the survey questions. Adolescents less than 18years were instructed to ask a parent/caregiver to click the on the consent button before proceeding to the survey. This instruction was included in the messages sent out to all social media platforms.

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