Original Article

Knowledge and Practice of COVID-19 Preventive Measures and Its Associated Factors Among Attendees of a Primary Care Clinic in Kano, Nigeria; A Cross-Sectional Study

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Abstract

Background: In recent times, an increasing number of mysterious deaths related to Coronavirus disease 2019 (COVID-19) have engulfed one of the largest cities in Africa. Hence, there is a need to promote the prevention of morbidity and mortality from this currently poorly understood disease. **Objectives:** To assess the level of knowledge and practice of preventive measures against COVID-19 and to identify its predictors. **Materials and Methods:** A cross-sectional questionnaire-based study among 420 adults systematically selected from attendees of a Nigerian general outpatient clinic over a 4-week study period. Data collected included participants' sociodemographic characteristics and knowledge and practice of COVID-19 preventive measures. Data were analyzed using descriptive and inferential statistics. Binary logistic regression was used to identify predictors of knowledge and practice of the preventive measures. Variables with $P < 0.05$ were considered predictors. **Results:** A majority were females (57.5%), they had a mean age of 33.1 ± 11.7 years, with tertiary education (60.2%). Overall, more than two-third of 294 (71.4%) of the participants had good knowledge. However, only 59 (14.3%) of the participants had correct (good) practice. Only educational level (adjusted odds ratio [AOR] = 2.079, 95% confidence interval [CI] = 1.039–4.161) and overall knowledge (AOR = 0.342, 95% CI = 0.155–0.754) were predictors of knowledge and practice, respectively. **Conclusion:** COVID-19 preventive practice is still inadequate among this primary care population in Kano, Nigeria. Ensuring access to quality education and enlightenment campaigns will go a long way in improving the knowledge on COVID-19 preventive measures, which may improve practice.

Keywords: Coronavirus disease 2019, knowledge, practice, preventive measures

Introduction

In recent times, there have been rising cases of unexplained deaths which have put Nigeria's second-largest city of Kano at the epicenter of the Coronavirus outbreak in Africa's most populous country.[1] Majority of these deaths happened in the Kano metropolis.[2] This was probably because they regarded the disease as a distant white man's ailment that could never spread to their domicile. Without recourse to expert advice and recommendations, Nigerians underestimated the advent of Coronavirus disease 2019 (COVID-19), thereby delaying the adoption of initial preventive measures which would have saved costs while protecting the citizenry from undue exposure to the virus.[3]

COVID-19 is caused by one of the strains in the family of Coronavirus (others include SARS, H5N1, H1N1, and MERS) which affects the upper respiratory tract. COVID-19 was

identified in late 2019 in Wuhan, China.[4] It is a contagious respiratory illness transmitted through the eyes, nose, and mouth, via droplets from coughs and sneezes, close contact with the infected person, and contaminated surfaces. It has an incubation period of approximately 1 to 14 days. The WHO has been assessing the outbreak around the clock and is deeply concerned both by the alarming levels of spread and severity, and by the disturbing levels of inaction.[5]

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There is presently no specific anti-viral drug regime used to treat patients, however, different vaccines have been produced for curtailing the pandemic. The management of patients mainly focuses on the provision of supportive care. Therefore, to curb this pandemic the strongest and most effective weapon that society has against this virus that is the prevention of its spread. The WHO/Nigeria Centre for Disease Control (NCDC) has advised on the following measures to prevent transmission:[6]

- Physical distancing – people should keep a minimum distance of 2 m from one another
- Handwashing with soap and water should be performed as frequently as possible or using an alcohol-based sanitizer where no water is available
- Covering the mouth and nose while coughing, using a disposable tissue and discarding in a waste bin and washing their hands or using their bent elbow
- Appropriate use of face mask, among others.

Despite the importance of these preventive measures, there was only one study to our knowledge at the time of this write-up that has assessed the knowledge and practice of the preventive measures in Kano state, Nigeria, where the number of cases is still rising. The single study was a baseline study that was done even before the first case of COVID-19 was reported in Kano.[7] Hence, there is a need to further assess knowledge and practice of preventive measures while the diseases are active in the area.

Furthermore, few studies have been conducted in Nigeria regarding knowledge, attitude, and practice of COVID-19, most of these studies are online studies and hence cannot give a full picture of the situation on the ground. An online study conducted by Reuben *et al*. revealed that 99.5% of the participants in north-central Nigeria had a good knowledge of COVID-19, this could be because majority (90.4%) of the respondents had a bachelor's degree and the study used a snowball sampling which could assess knowledge in people of the similar cohort.[3] Another online study on preliminary knowledge of COVID-19 by Olapegba *et al*. revealed that the majority of the respondents (83.8%) had a good knowledge of COVID-19.[8] However, this study by Olapegba *et al*. was an online study and captured the majority of the respondents in the southwestern region of the country; hence, the Hausa population in the northern region was poorly represented. Contrary to the above, a study in Kano by Habib *et al*. revealed low levels of knowledge 270 (30.47%), good attitude 158 (17.8%), and good practice 230 (25.96%).[7]

In most instances, good knowledge does not translate to adequate practice of preventive measures, especially in Kano state where literacy level is low, compared to the other parts of the country.[9] To buttress the above point, a study by Iliyasu *et al*. in Kano,[10] revealed that there was a negative association between knowledge and practice of infectious disease preventive measures even among health workers. Nevertheless, considering the high and dense population of the

Kano metropolis,[11] the only means of curbing the spread of this disease is by emphasizing the practice of these measures so that practice gaps can be identified, and effective strategies formulated for better behavioral change and control of the spread of this deadly and highly infectious disease.

MATERIALS AND METHODS

Ethical approval
Ethical approval was obtained from the Research Ethical Committee.

Study design
This was a descriptive cross-sectional study.

Study area
The study was carried out at the General Outpatient Clinic (GOPC). The GOPC is a busy primary care unit within the hospital with an average of 250 undifferentiated adult patients seen daily.

Study population and eligibility criteria
All consenting adults (≥18 years) attending the GOPC during the 4-week study period were included, while those who needed emergency care were excluded.

Sample size estimation
Assuming a response rate of 88% from a similar study in kano,[7] a sample size of 420 was calculated using the fisher's formula $n = ([Z\alpha]^2 \, P \, q)/d^2$.

Sampling method
A systematic sampling method was used. The first respondent was chosen through balloting, thereafter every 12th patient (5000/420) was selected until sample size was obtained. An average of 21 patients were recruited daily.

Study protocol
For each eligible participant, a written informed consent was obtained. The participants were interviewed by the trained research assistants (residents and medical officers) using a pretested serially coded interviewer-administered questionnaire. The questionnaire contained information on sociodemographic characteristics which include age, gender, marital status, ethnicity, religion, educational level, occupation, source of information, self-rated overall health condition, and income. Income was further classified into social class as poor, middle class, upper-middle-class, and upper class based on the Nigerian All media and product survey.[12] Respondents were asked 12 questions on knowledge of preventive measures of COVID-19 which was adapted from a similar study in Ethiopia.[13]

A score of 1 was allotted to a correct answer and 0 for each incorrect or unsure answer to each knowledge question. The final score ranged from 0 to 15. A score of 70% and above was considered good overall knowledge. The respondents were asked 13 questions regarding the practice of preventive measures of COVID-19 and a score of 1 was allotted to a

correct answer and 0 for each incorrect or unsure answer. The final score ranged from 0 to 13. A score of 80% and above was considered as having good overall practice.

Data analysis

Data were stored in a pass-worded computer to ensure confidentiality and analyzed using the Statistical Package for the Social Sciences version 22 (SPSS) statistical software. Frequencies and proportions were used to describe categorical variables. Quantitative variables were described using measures of central tendency (mean) and measures of dispersion (range, standard deviation) as appropriate. The Chi-square test was used in assessing the significance of associations between categorical variables. A value of $P \leq 0.05$ was considered statistically significant. The predictors of knowledge and practice of preventive measures were determined using a binary logistic regression model, using Covariates that were statistically significant at 20% in univariate analysis. The level of statistical significance (α) was set at ≤ 0.05.

RESULTS

A total of 420 respondents participated in the study and eight questionnaires were dropped due to nonresponse and missing data giving a response rate of 98%. The participants' mean age was (33.1 ± 11.7) years within an age range of 15–86 years. The respondents were predominantly females 237 (57.5%) [Table 1]. The majority were married 244 (59.2%), Muslims 363 (88.1%), with tertiary level of education 248 (60.2%). More than one-quarter of the participants 115 (27.9) work in the public sector, while 78 (18.9%) were unemployed. The mean monthly income of the respondents was $148 with an income range of $0.5–3640 per month. The majority 181 (43.9%) of the respondent fell below the poverty line of (<$600 per annum) and only 6 (1.5%) were among the middle class ($14000-$50000 per annum). Only 33 (8%) participants had been diagnosed with COVID-19 infection in the past and 65 (15.9%) participants had family members who had previously been diagnosed with COVID-19. More than two-thirds of 294 (71.4%) of the participants had a good self-rated health condition. Majority of the participants 286 (69.4) have a good self-rated knowledge of COVID-19 and 346 (84.0%) had a good self-rated knowledge of the preventive measures of COVID-19 infection. Their source of information was majorly from the social media 188 (45.6%), and only 43 (10.7%) obtained their information from government reports.

Knowledge on COVID-19 preventive measures

The overall mean knowledge (standard deviation) of preventive measures of COVID-19 was 11.8 ± 2.137 Out of the respondents, more than two-thirds of 294 (71.4%) of the participants had a good knowledge [Table 2].

One hundred and forty-one (34.3%) participants mentioned all the preventive measures of COVID-19 infection including hand washing, social distance, wearing face mask, and covering the mouth while coughing. Ninety-three (22.6%), 211 (51.2%),

Table 1: Sociodemographic characteristics and self-rated information of the study participants (*n*=412)	
Variable	**Frequency (%)**
Age	
15–39	310 (75.2)
40–59	89 (21.6)
60–79	12 (2.9)
>80	1 (0.2)
Sex	
Male	175 (42.5)
Female	237 (57.5)
Religion	
Islam	363 (88.1)
Christianity	43 (10.4)
Traditional	6 (1.5)
Educational level	
None	7 (1.7)
Qur'anic	44 (10.7)
Primary	28 (6.8)
Secondary	85 (20.6)
Tertiary	248 (60.2)
Occupation	
Public sector	115 (27.9)
Private sector	55 (13.3)
Self employed	94 (22.8)
Unemployed	79 (19.2)
Retired	6 (1.5)
Schooling	60 (14.6)
Others	3 (0.7)
Social class	
Poor	181 (43.9)
Lower class	66 (16.0)
Upper lower class	159 (38.6)
Middle class	6 (1.5)
Diagnosed of COVID 19	
Yes	33 (8.0)
No	379 (92.0)
Family member diagnosed of COVID	
Yes	65 (15.8)
No	344 (83.5)
Don't know	3 (0.7)
Self-rated health condition	
Good	294 (71.4)
Poor	53 (12.9)
Don't know	65 (15.8)
Self-rated knowledge of COVID-19	
Good	286 (69.4)
Poor	61 (14.8)
Don't know	65 (15.8)
Self-rated knowledge of preventive measures	
Good	346 (84.0)
Poor	18 (4.4)
Don't know	48 (11.7)

and 43 (10.4%) participants mentioned Garlic, prayers, and hot weather, respectively, as means of preventing the infection. Only less than half of 188 (45.6%) of the participants knew

what social distance means. Similarly, only 197 (47.8%) knew about the NCDC guideline for the prevention of COVID-19 infection. Only 168 (40.8%) mentioned the use of face mask, 70 (17%) use of hand sanitizer, 151 (36.7) hand washing, 148 (35.9) social distance, and 9 (2.2%) mentioned elbow sneezing as the NCDC preventive guidelines. However, a majority of 376 (91.3%) of the participants knew that hand washing was important. Only 83 (20.1%) of the participants knew the required percentage of alcohol in a hand sanitizer.

Practice of COVID-19 preventive measures

The mean score (standard deviation) of the practice of preventive measures was 7.04 ± Table 3 depicts the practice of preventive measures. Overall, only 59 (14.3%) of the participants had a correct (good) practice of preventive measures. The majority 255 (61.9%) practiced the NCDC recommendation. More than two-thirds of the participants 254 (61.7%) said that they always wash their hands, but only less than one-third of 123 (29.9%) wash their hands for 10–20 s. Majority of 329 (79.9) of the participants uses soap and water to wash their hands. More than half 299 (55.4%) of the participants said that they avoided going to crowded places during the COVID-19 pandemic. Among those that visited crowded places majority of 100 (24.3%) went to the market, followed by mosque/church 97 (23.5%). Nearly two-thirds of 266 (64.6%) of the participants took a balanced diet during the pandemic. Only 71 (17.2%) took traditional medications to prevent COVID-19 infection. More than half of the participants 245 (59.5%) did not practice physical exercise as a form of prevention against COVID-19 infection.

Predictors of knowledge and practice of preventive measures

Bivariate analysis showed that age, educational level, self-rated health condition, and self-rated knowledge of COVID-19 infection were variables with a $P < 0.2$ [Table 4].

Table 2: Participants' knowledge of preventive measures of COVID 19 (*n*=412)

Variable	Categories	Frequency (%)
Overall knowledge of preventive measures	Good	294 (71.4)
	Poor	118 (28.6)
Knowledge on Preventive measures against covid-19	Hand washing	355 (86.2)
	Social distance	247 (60)
	Elbow coughing or sneezing	215 (52.2)
	Wearing face mask	321 (77.9)
	Use of antibiotics	86 (20.9)
	Use of garlic and ginger	93 (22.6)
	Prayers	211 (51.2)
	Hot weather of Africa	43 (10.4)
	Correct meaning of social distancing	188 (45.6)
	Social distancing reduces spread of COVID-19	319 (77.4)
	Ideal distance is at least 2 m	301 (73.1)
	All individuals should be involved in social distancing	332 (80.6)
	Knowledge on NCDC guidelines	197 (47.8)
	Washing hands is important	376 (91.3)
	Effective percentage of alcohol in a hand sanitizer is 60%	83 (20.1)

NCDC: Nigeria Centre for Disease Control

Table 3: Participants' practice of preventive measures against COVID-19 infection (*n*=412)

Variable	Category	Frequency (%)
Overall practice of preventive measures	Good practice	59 (14.3)
	Poor practice	353 (85.7)
Practice of preventive measures	Follow NCDC Recommendation	255 (61.8)
	Frequently washed their hands	254 (61.7)
	Hand washing for 10–20 s	123 (29.9)
	Wash hands using soap and water	329 (79.9)
	Uses alcohol-based hand sanitizer when soap and water is not available	277 (67.2)
	Touching the face with unwashed hands	59 (14.3)
	Avoids all crowded places	299 (55.4)
	Attended a crowded place during the pandemic	194 (47.1)
	Ensuring a balanced diet	266 (64.6)
	Intake of traditional medications	341 (82.8)
	Regular physical exercise	169 (41.0)

NCDC: Nigeria Centre for Disease Control

Table 4: Factors associated with knowledge of preventive measures of COVID-19 among study participants (*n*=412)				
Variables	Good knowledge	Poor knowledge	χ^2	P
Age				
18–39	219	91	4.674	0.19
40–59	68	21		
60–79	7	5		
>80	0	1		
Sex				
Male	124	51	0.038	0.84
Female	170	67		
Religion				
Islam	259	104	0.474	0.79
Christianity	30	13		
Traditional	5	1		
Marital status				
Single	107	46	0.480	0.92
Married	177	67		
Divorced	4	2		
Widowed	6	3		
Educational level				
None	4	3	6.251	0.18
Qur'anic	26	18		
Primary	18	10		
Secondary	60	25		
Tertiary	186	62		
Occupation				
Public sector	87	28	3.469	0.62
Private sector	36	19		
Self-employed	67	31		
Unemployed	54	24		
Retired	4	2		
Schooling	46	14		
Diagnosed of COVID-19				
Yes	22	11	0.387	0.53
No	272	107		
Family member diagnosed with COVID-19				
Yes	47	18	1.264	0.53
No	244	100		
Do not know	3	0		
Social class				
Poor	127	54	2.868	0.41
Lower class	49	17		
Upper lower	112	47		
Middle class	6	0		
Self-rated health				
Good	208	86	6.994	0.03*
Poor	45	8		
Do not know	41	24		
Self-rated knowledge of COVID-19				
Good	210	76	4.875	0.08
Poor	45	16		
Do not know	39	26		
Self-rated knowledge of preventive measures				
Good	251	95	2.087	0.35
Poor	13	5		
Do not know	30	18		

*Significant at *P*<0.05

These variables were subjected to logistic regression [Table 5]. Only educational level was found to be a predictor of knowledge of COVID-19 infection. Those that were educated were two times more likely to have knowledge of the preventive measures (Adjusted odds ratio [AOR] = 2.079, 95% confidence interval [CI] = 1.039–4.161) compared to those that were not educated.

Predictors of the practice of COVID-19 preventive measures among participants

Table 6 shows that only overall knowledge of COVID-19 preventive measures was statistically associated with its practice. Gender, educational level, occupation, self-rated knowledge of COVID-19, and self-rated knowledge of preventive measures were variables with a $P < 0.2$ [Table 6].

These factors were subjected to logistic regression, but only good overall knowledge of COVID-19 was a predictor of the practice of preventive measures [Table 7]. Those that have good overall knowledge of preventive measures had a 34% increased likelihood of practicing the preventive measures (OR = 0.342, 95% CI = 0.155–0.754) compared to those with poor overall knowledge.

Discussion

The study was conducted in a predominantly Hausa Muslim population of Northern Nigeria. This study found that more than two-thirds of the study population had a good overall knowledge of 294 (71.4%) of preventive measures of COVID-19 but below one-fifth 59 (14.3%) practice the preventive measures. Only educational level was found to predict good knowledge, and only good overall knowledge predicted of practice.

The study showed that most of the participants were of Hausa, the Muslim populace. This showed a typical demographics of the northern part of Nigeria.[14] Majority of the participants had tertiary education. However, the poverty level was high as majority fell below the poverty line of <$600 per annum.[12] This reveals the typical demographics of the northern part of Nigeria where majority are farmers, artisans, and petty traders who survive on daily wages from their work.

Furthermore, this study showed a high level of knowledge of preventive measures. This observation had been reported in similar studies.[2,8,12,15] The high level of knowledge could be because of the massive media campaign of the Nigerian Government and NGOs since the first case of the disease was reported. Contrary to this finding, a similar study in Kano Nigeria found that only less than one-third 270 (30.4%) of the population had good knowledge. This low level of knowledge could be because the study was conducted even before the first case of COVID-19 was recorded in Kano. At that time, there were initial cultural misconception and misinformation in Nigeria that led to the initial denial of the COVID-19 infection translating to a low level of knowledge.[2,7] More than half of the participants mentioned prayer as a means of protection against the COVID-19 infection, this shows the level of spirituality of the northern Nigerian populace. Every pandemic/epidemic comes with a lot of myths and misconceptions, COVID-19 infection is not an exception as many people believed that taking traditional medications and herbs like garlic can prevent and treat the disease. In this study, one in five of the participants mentioned Garlic as a means of prevention. However, only a few mentioned the hot weather of Africa which was also a misconception.

However, most of the participants' sourced COVID-19 information from social media, which was not surprising based on the ages and educational level of the majority. In Nigeria due to the frequent power outages, it leaves the populace with no other option than to rely on their phones via social media to obtain information.[16] This presents a daunting task to the government to sanitize the type and content of information that is disseminated via social media. There is also needed to advocate to people to rely on facts emanating from government reports and authentic sources to avoid myths and misconception.[16]

Despite the high level of knowledge, the practice of preventive measures was found to be low, whereby more than 80% of the participants had a poor preventive practices. This could be because of the timing of the study, whereby the data were taken after the first wave of the pandemic, and the government had relaxed the enforcement of preventive measures. This finding was also supported by a study from Iliyasu *et al.*, who corroborated that good knowledge of infectious diseases even among health workers does not translate to good practice of preventive measures. This finding has also been reported in other studies.[7,9,15,17] On the contrary a similar online study among the educated populace in Nigeria reported a high level of practice of preventive measures of 60.4%. This could be because the study was on an educated study group and it was done during the peak of the first wave of COVID-19 infection in Nigeria.[18] This study revealed that more than half of the participants practice hand washing even though only a small percentage washed their hands for the required duration. This could be because of enforced handwashing in all public places, but unfortunately, the duration was not enforced. Almost half of the participants visited crowded places during the study. Even though, these places could be considered necessary, such as markets and places of worship considering the poor food security and level of spirituality of the Nigerian populace, respectively.[19,20] In view of this, religious leaders should be educated on ensuring preventive measures in places of worship

Table 5: Logistic regression of factors associated with knowledge of preventive measures

Variable	OR	95% CI	P
Educational level	2.079	1.039–4.161	0.039*
Self-rated health	1.050	0.504–2.156	0.896
Self-rated knowledge	0.586	0.280–1.225	0.155

*Significant at $P<0.05$. OR: Odds ratio, CI: Confidence interval

Table 6: Factors associated with the practice of preventive measures of COVID-19 among study participants (*n*=412)				
Variables	Good practice	Poor practice	χ^2	*P*
Age				
18–39	42	268	1.638	0.651
40–59	16	73		
60–79	1	11		
>80	0	1		
Sex				
Male	20	155	2.073	0.150
Female	39	198		
Religion				
Islam	51	312	1.794	0.408
Christianity	6	37		
Traditional	2	4		
Marital status				
Single	20	133	0.438	0.932
Married	37	207		
Divorced	1	5		
Widowed	1	8		
Educational level				
None	1	6	5.987	0.200
Qur'anic	2	42		
Primary	2	26		
Secondary	12	73		
Tertiary	42	206		
Occupation				
Public sector	24	91	8.967	0.110
Private sector	5	50		
Self-employed	13	85		
Unemployed	7	71		
Retired	2	4		
Schooling	8	52		
Diagnosed of COVID-19				
Yes	3	30	0.800	0.371
No	56	323		
Family member diagnosed with COVID-19				
Yes	8	57	1.111	0.574
No	50	294		
Do not know	1	2		
Social class				
Poor	30	151	1.430	0.699
Lower class	8	58		
Upper lower	20	139		
Middle class	1	5		
Self-rated health				
Good	45	249	1.276	0.528
Poor	5	48		
Do not know	9	56		
Self-rated knowledge of COVID-19				
Good	46	240	2.804	0.246
Poor	5	56		
Do not know	8	57		
Self-rated knowledge of preventive measures				
Good	51	295	3.273	0.195
Poor	0	18		
Do not know	8	40		
Overall knowledge of preventive care				
Good knowledge	51	243	7.663	0.006
Poor knowledge	8	110		

*Significant at *P*<0.05

Table 7: Logistic regression of factors associated with the practice of preventive measures

Variable	OR	95% CI	*P*
Sex	1.573	0.868–2.823	0.136
Educational level	1.096	0.117–10.261	0.936
Occupation	0.632	0.335–1.192	0.156
Self-rated knowledge of COVID 19	0.678	0.147–3.131	0.618
Self-rated knowledge of preventive measures	2.345	0.646–8.507	0.195
Overall knowledge of preventive measures	0.342	0.155–0.754	0.008*

*Significant at *P*<0.05. OR: Odds ratio, CI: Confidence interval

to mitigate the pandemic. The use of traditional medications is one of the myths of treatment and prevention of COVID-19 infection. In this study, some of the participants still use it for treatment despite government enlightening campaigns on their danger. This was similarly seen during the Ebola epidemic when people resorted to using salt water for treatment and prevention which resulted in morbidity and mortality.[21] Despite the importance of exercise in reducing the severity of COVID-19 infection and improving the outcome of the disease, only about half of the study participants did practice physical exercise. This could be because of the lockdown enforced, closure of fitness centers, and generally because of the poor culture of physical exercise among others.[22]

In this study, only educational level and overall knowledge of COVID-19 preventive measures were a predictor of knowledge and practice, respectively. All other sociodemographic variables were not predictors of knowledge and practice. This was not surprising as similar studies reported similar findings.[7,17] This could be because COVID-19 can virtually affect every individual, irrespective of age, tribe, religion, or occupation. Hence, all individuals try to familiarize themselves with the condition and measures of prevention, as the disease has no respect for sociodemographic characteristics. However those that are educated have a higher health-seeking behavior and have more access to reading materials in both local and other languages unlike the uneducated. In addition, good knowledge of COVID-19 predicted the practice of preventive measures. This could be because those that have knowledge about hand washing, social distancing, face mask use, etc., are more likely to put it into practice than those with poor knowledge.

The strength of this study was that it used face-to-face interviews, unlike other similar online studies which used electronic data and hence subject to response bias.

This study used a semi-structured questionnaire which allowed the exploration of patients' perceptions regarding some preventive practices.

This study is not without limitations, due to the dynamic nature of the disease, being novel, new discoveries can affect knowledge assessment. The timing of the study was also a limitation as the disease comes in waves, hence preventive measures are subject to change based on relaxation or enforcement by the government. Despite these limitations, this study provides the basis for further studies to identify other factors that hinder the practice of preventive measures in this community.

Conclusion

This study demonstrated that there is a gap between knowledge and practice of preventive measures. Hence, the government and concerned authorities need to reinforce the implementation of the practice of preventive measures through further enlightenment of the community and providing necessary materials to aid the practice.

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Conflicts of interest

There are no conflicts of interest.

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