

COVID-19 pandemic: Nigerians' knowledge, perception and adherence to preventive measures

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Abstract

Aims: One of the ways to manage the current coronavirus disease 2019 (COVID-19) pandemic is monitoring of public knowledge, risk perceptions, adherence to preventive measures and preparedness behaviors. This is of utmost importance in resource limited countries. This study determined the knowledge and perception about COVID-19; adherence to COVID-19 preventive measures; as well as predictors of self-perceived risk of contracting COVID-19 among Nigerian adults.

Methods: A cross-sectional study was conducted among Nigerian adults ≥ 18 years using an online survey. Participants were recruited using the authors' social networks. Data was analysed using descriptive and inferential statistics at 5% level of statistical significance.

Results: Generally, a high proportion of respondents had correct knowledge about COVID-19. However, only about half (49.8% and 49.9%) had correct knowledge that obesity was a risk factor for COVID-19 and that antibiotics cannot be used to treat COVID-19. Most (84.1%) did not have a self-perceived risk of contracting COVID-19. Most (81.0%) have been avoiding crowded places and 61.3% washed their hands very often. Predictors of self-perceived risk of COVID-19 were age 40-59 years (OR 2.05, CI 1.217-3.435), ≥ 60 years (OR 4.68, CI 1.888-11.583) and visiting crowded places (OR 2.27, CI 1.499-3.448).

Conclusion: Our study recommends more rigorous public health education aimed at improving COVID-19 outbreak response in Nigerian. Also, physical and social distancing should be emphasized across all age groups with additional focus on the older population.

Introduction

Coronavirus disease 2019 (COVID- 19) has been a major public health concern since December 2019 when it was first detected in Wuhan, China. The causal virus called the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is highly infectious and has recorded more than 3 million cases within a space of four months of outbreak. As at May, 2020, two hundred and twelve (212) countries of the world [1] have been affected by the highly infectious SARS- CoV-2 and it still has a high chance of reaching many new territories. The global mortality rate was pegged at about 3.4% in early March, 2020 [2], but a shift from this is expected to occur before the end of the pandemic.

The understanding of the transmission risk is inconclusive, however, the popular seafood market in Wuhan was initially linked to the outbreak [3]. Man-to-man transmission is now the main route of transmission. The fatal episode of the disease presents pneumonia-like symptoms similar to severe acute respiratory syndrome coronavirus (SARS-CoV), and Middle East respiratory syndrome coronavirus (MERS-CoV) [4]. Other common symptoms include high fever, dry cough, fatigue, malaise, and difficulty in breathing [5]. Diarrhoea was recently included due to its high occurrence in many positive cases in Africa.

Coronavirus disease 2019 has become a major issue in Nigeria as cases have been confirmed in 34 states of the country including the Federal Capital Territory (FCT) as at May, 2020. From an

epidemiological point of view, the observed trend in incidence of newly confirmed cases in Nigeria suggests that it may take a while before the country is able to flatten the COVID-19 incidence curve. Due to lack of vaccine or proven drugs for the management of COVID-19, transmission control becomes a very important intervention that can abate the spread of the disease in community and health care settings [6]. This is even more important in a country that is deficient in good public health care system. Despite the efforts put in place by the Nigerian government to mitigate the impact of COVID-19, poor public knowledge, attitudes and practices of people relative to COVID-19 control can foil even the best national public health control response.

Nigeria is currently in the heat of COVID-19 pandemic and to guarantee a successful early containment of the disease, in the absence of vaccine, adherence to control measures determined by people's knowledge, attitudes, and practices towards COVID-19 is very important [7]. The aim of this study therefore was to determine the knowledge and perception about COVID-19 among Nigerian adults during a period Nigeria is seeing a consistent increase in the number of new cases. This study also assessed adherence of Nigerian adults to the current COVID-19 preventive measure guidelines in Nigeria. Lastly, this study determined the predictors of self-perceived risk of contracting COVID-19 among the study participants. Findings from this study would provide useful information for public health policy development and implementation for quick response to COVID-19 outbreak in Nigeria.

Materials And Methods

Study area

The study was carried out in Nigeria, the most populated country in Africa. The country's population is estimated to be about 206 million [8]. Nigeria is located on latitude 10° North and longitude 8° East and has a total area of 923,768 square kilometer.

Coronavirus disease 2019 was first confirmed in Nigeria on 27 February 2020 in Lagos State. The index case was an Italian who travelled from Italy to Nigeria [9]. On 9 March 2020, a Nigerian who had contact with the Italian was confirmed the second person infected with SARS-CoV-2. Nigeria ranks 6th in the total number of active coronavirus disease 2019 cases in Africa as at May, 2020. As at the time of this report, there were 4399 confirmed cases, from which 778 and 143 have recovered and died respectively.

To curtail the spread of the SARS-CoV-2 in Nigeria, two states namely Lagos, Ogun and the Federal capital territory were under total lock down as the time this study was conducted. Other states were under partial lock down during the study period.

Study design and sample size

This cross-sectional study was conducted from March 31 to April 25, 2020. To avoid physical contact with our participants, a convenience sampling method was utilized to recruit study participants. We used authors' social media networks and emails to source for information via an online-based survey. Only

adults (age 18 years and above) were recruited for the study. Nigerians in diaspora, foreigners living in Nigeria, and medical practitioners were excluded from the study. Coronavirus disease 2019 transmission is still on-going, so, we had no prevalence data that could be used for the estimation of the sample size. Therefore, the minimum sample was calculated based on the country's estimated 100 million adults population in 2020 [8], 4% precision and at 95% confidence level using an online-based sample size estimator [10]. Although a sample size of 601 participants was computed, all those who volunteered to participate in the study were included. Overall we recruited 1258 participants for our study but only 1022 had data that were fit for analysis.

Data collection

Data was collected using a structured questionnaire adapted from the National Health Commission of the People's Republic of China protocols and guidelines on COVID-19 [11,12]. The questionnaire comprised four sections namely; socio-demographics, knowledge about COVID-19, perceptions about COVID-19 and adherence to preventive measures.

Section one of the questionnaire comprised 10 questions on socio-demographic characteristics of the participants. Information like age, gender, education level, religion and marital status were obtained in this section. In section two, 26 questions related to knowledge about transmission, risk factors, symptoms, disease progression, treatment and prevention of COVID-19 were asked from the participants. The third section had questions related to perception of the respondents about COVID-19. The final section contained 12 questions on adherence to preventive measures against COVID-19.

Ethical approval

The study protocol was approved by the Ethics Committee of the University of Medical Sciences/Teaching Hospital, Ondo City, Ondo State, Nigeria. Careful explanation of the purpose, content, and implication of the research was made known to the participants. Confidentiality of the information provided was assured.

Statistical analysis

Data generated were checked for accuracy and coded. Subsequently, the data were then exported to SPSS version 24 (SPSS, Chicago, IL) for statistical analysis. Descriptive statistics like frequency counts, percentage and mean were used to present responses emanated from survey. Chi-square test was used to determine bivariate associations between the dependent variable and selected socio-demographic features like age, gender, marital status and occupation of respondents; knowledge; perception; and preventive measures on COVID-19. Logistic regression analysis was used to determine the predictors of likelihood of contracting COVID-19 among subjects recruited for the study. Variables on socio-demographic characteristics, knowledge, perception and preventive measures on COVID-19 were included in the model. The statistical level of significance was set at $P < 0.05$.

Results

The mean age of the participants was 33.4 ± 11.8 years, 53.5% were males and 52.2% were not married. Majority of the participants had education up to the tertiary level (88.5%) and about two-fifth (40.3%) were civil servants (Table 1).

Most (94.1% and 91.4% respectively) of the respondents have encountered information about the mode of transmission and prevention of COVID-19. The internet was the most (97.0%) frequent reported source of information about the disease by the participants (Table 2).

Correct knowledge about the mode of transmission, risk factors, symptoms, disease progression, treatment and prevention of COVID-19 was generally high among the study participants. Although most (97.7%) knew that COVID-19 spreads via respiratory droplets of infected individuals when they sneeze or cough, two hundred and ninety-nine (29.3%) did know that transmission of COVID-19 without fever or other symptoms was possible. Although a high proportion (80.4%) correctly reported that chronic diseases was a risk factor for severe COVID-19, only 49.8% knew that obesity was a risk factor for severe COVID-19. Although a higher proportion of the respondents correctly knew that cough (95.3%) and fever (89.3%) were symptoms of COVID-19, only a few correctly knew that fatigue (47.4%) and muscle pain (30.9%) were also symptoms of COVID-19. Less than half (46.0%) correctly knew that persons infected with COVID-19 have lesser frequency in occurrence of common cold-associated symptoms like, stuffy nose, runny nose, and sneezing. Quite a number (86.3%) of the respondents knew that not all persons infected with COVID-19 progressed to the severe form of the disease and 70.5% knew that most people infected with COVID-19 will not die of the disease. Even though almost all the participants (94.7%) correctly reported that there was currently no effective cure but early management of COVID-19 could aid recovery, 50.1% still wrongly stated that antibiotics can be used to treat COVID-19. More than 90% of the participants knew that avoidance of crowded places, staying at home during transmission and regular washing of hands with soap and running tap could prevent COVID-19 transmission (Table 3).

A total of 98.5% agreed that the outbreak of COVID-19 in Nigeria was real while about a tenth (8.4%) perceived it as a disease of the rich people. Although a little above half (54.1%) of the respondents perceived that the government of Nigeria is not handling COVID-19 outbreak well, most (95.8%) still believed the government will win the battle against COVID-19 outbreak in Nigeria (Table 4).

Only a few 15.9% believed they were at risk of contracting COVID-19. The commonly adduced reasons for not been at risk of contracting COVID-19 among those who did not perceive themselves to be at risk of contracting COVID-19 were they always avoided crowded places (69.1%) and they always washed their hands with soap under running tap (67.1%) (Table 5). The study showed that 19% of the respondents had visited crowded places in the recent times, 38.7% did not wash their hands with soap and running water very often, 37% rarely or never used hand sanitizers and 64% do not wear face masks. Majority (87.5%) of the respondents complied with the 'stay at home' government's policy to arrest the spread of COVID-19 (Table 6).

Factors significantly associated with self-perceived risk of contracting COVID-19 were age, gender, marital status, occupation, frequency of hearing about COVID-19, visitation to crowded places, use of hand sanitizers, compliance with stay at home instruction from the government and history of self-treatment with preventive drugs against COVID-19 ($P < 0.05$) (Table 7).

Predictors of self-perceived risk of contracting COVID-19 in this study were age, gender, marital status and visitation to crowded places in recent times. Respondents who were aged 40-59 years were two times more likely to perceive themselves as having a risk to contract COVID-19 (OR 2.05, CI 1.217-3.435), while those who were 60 years and above were about five times more likely to perceive themselves as having a risk to contract the disease (OR 4.68, CI 1.888-11.583) compared to respondents aged 18-39 years. Female respondents were 0.5 times less likely to perceive themselves as having a risk to contract COVID-19 (OR 0.51, CI 0.352-0.751) when compared to male respondents. Respondents who were married were 0.5 times less likely to perceive themselves as having a risk to contract COVID-19 (OR 0.53, CI 0.321-0.888) compared to those who were not married. Visitation to crowded places was three times more likely to predict self-perceived risk of contracting COVID-19 (OR 2.27, CI 1.499-3.448) compared to not visiting crowded places (Table 7).

Discussion

To the best of our knowledge, this is the first comprehensive report in Nigeria that considered the knowledge about the spread, symptoms, disease progression, risk factors, treatment and preventive measures against COVID-19. In addition, our study assessed perceptions about COVID-19 and adherence to preventive measures among the Nigerian population. We also determined the predictors of self-perceived risk of contracting COVID-19.

A common source of information about COVID-19 in this study was the internet. This is similar to what was reported in a recent study from Egypt which also identified internet as the most common source of information about COVID-19 [5]. Coronavirus disease 2019 information from the Ministry of Health channeled through television and radio stations are often regulated and are always in line with the World Health Organization (WHO) and Nigeria Centre for Disease Control (NCDC) guidelines. To reach more people, bulk sms and online outlets through the use of social media like Facebook, twitter and so on are now also widely adopted by the Ministry of Health and NCDC, in addition to television and radio, to disseminate COVID-19-related information. The use of internet however, has also increased the influx of fake and unauthenticated news. Caution should therefore be exercised in the use of online outlets as the major source of information by individuals. Doubtful online information should be verified from other reliable sources.

The knowledge about the spread, symptoms, disease progression, risk factors, treatment and preventive measures against COVID-19 in this study was generally good. This can be attributable to the high level of education of our respondents as corroborated by a study among educated people in China which also revealed good knowledge about COVID-19 [7]. Despite the general good knowledge displayed in virtually

all the domains of knowledge assessed, the responses to some specific knowledge questions are disturbing and need to be clarified by more public enlightenment. For example, the finding that some respondents either did not know or did not believe that asymptomatic individuals can transmit the virus is quite worrisome. Such persons may be tempted not to adhere to the prevention guidelines for COVID-19 where there are apparently healthy individuals and this can undermine the preventive efforts of COVID-19 transmission from person to person.

Also, quite a number of our study participants clearly misconstrued sneezing as a symptom of COVID-19. Although unprotected sneezing is one of the effective ways of transmitting the novel coronavirus from an infected individual, sneezing is not part of the community case definitions for COVID-19 according to NCDC guideline. More public enlightenment on the community case definitions of COVID-19 is needed to avoid the stigma associated with sneezing in public places which is increasingly becoming high in Nigeria.

Another area where Nigerians need further enlightenment is knowledge about the at-risk population for severe COVID-19. Although knowledge about the risk factors for severe COVID-19 appeared good, approximately 20% of individuals still either did not know or did not believe that severe COVID-19 is associated with chronic illnesses. Similarly, approximately half of our study participants did not know or did not believe there was a relationship between obesity and severity of COVID-19. These findings are disturbing as there are documented evidences that older individuals, people with chronic illnesses and obesity needs to take extra precaution to prevent themselves from contracting COVID-19 as they are more at risk of progressing to the severe form of the disease [13,14]. There is therefore a need for serious public enlightenment if the desired reduction in morbidity and mortality associated with COVID-19 in this population is to be attained. Another call for concern is the reasonable number of respondents who believed that antibiotics can be used for managing COVID-19 and those who did not know that antibiotics cannot be used for managing COVID-19. These two groups of individuals could become victims of inappropriate use of antibiotics and its subsequent complications as the sale of drugs is generally unregulated in Nigeria with many medicine stores not requesting for doctors' prescriptions before drugs are sold to patients. Another implication of the inappropriate use of antibiotics, especially in Nigeria, where the use of antibiotics has been grossly abused, is that it poses serious public health threat in relation to antimicrobial resistance. Stressing the fact that the World Health Organization disapproves the use of antibiotics for the treatment of COVID-19 can therefore not be overemphasized [15].

Coronavirus disease 2019 infection in Nigeria started among international travelers, many political office holders and elites at the early stage. This made a number of people to believe that it was a disease of the rich from anecdotal evidence. Currently however, COVID-19 transmission is in the community transmission phase in Nigeria where everybody is now at risk of contracting the disease. The fact that some few individuals in our study still believed that COVID-19 is a disease of the rich is therefore disheartening and disturbing. These set of individuals are not likely to adhere to the COVID-19 prevention guidelines and may jeopardize the current efforts in the fight against this highly contagious disease. Hence, more public education is needed if the fight against COVID-19 is to be won.

Findings from this study revealed that our study participants are quite optimistic that the Nigerian government can win the current battle against COVID-19. Study participants from a recent study among the Chinese population also had similar optimism [16]. Previous Government outbreak response (Ebola outbreak in Nigeria and Severe Acute Respiratory Syndrome outbreak in China) in these two countries may be a possible reason why the populace are confident that their Government can handle the current COVID-19 outbreak.

In this study, a total lockdown of the nation was perceived as a measure that can help to curtail the current COVID-19 pandemic. This should however be interpreted with caution because most of our respondents are highly educated persons and civil servants who may be on salaries and hence are not representative of the entire population. Anecdotal evidence suggests that a total lockdown may not be appropriate for Nigeria as quite a number of her citizens are not salary earners and therefore have to fend for themselves, especially when the provision of palliatives is not effective. Further studies addressing the perception of the self-employed and those who work with private establishment about the total lockdown policy as well as discussion involving all relevant stakeholders about possible ways to adapt the lockdown policy to the Nigerian context is urgently recommended.

The self-perceived risk of contracting SARS-CoV-2 among our study population was high when the proportions are converted to absolute numbers. Among those that perceived themselves as not being at risk of contracting the virus in this study, reasons adduced for their self-perceived risk include the fact that they adhere to some preventive measures such as avoidance of crowded places and regular washing of their hands with soap under running tap. This assertiveness is quite true as these measures are highly effective in breaking the chain of transmission of the disease and they should be highly encouraged.

Some of the good preventive measures adopted, as reported by our participants, included avoidance of crowded places; frequent hand washing with soap and running water; and use of hand sanitizers. Even though our respondents reported adherence to some precautionary measures to prevent the spread of COVID-19, the adherence in our study was low compared to the measures taken in other countries like China and Egypt [5,7]. Reasons why people are not adhering to these preventive measures in Nigeria should be addressed urgently. For example, some of our study participants rarely or do not use hand sanitizers because they cannot afford it, feel it is scarce or feel its use is not necessary. Recommended ways of increasing the adherence to COVID-19 prevention guidelines among the Nigerian population include providing public education on clear explanation on why the adherence to COVID-19 prevention measures needs to be observed, disabusing peoples' minds about COVID-19 myths, providing facts and correct information about COVID-19, and addressing obstacles hindering the full adherence to the prevention guidelines among other recommendations.

Only a few of our respondents used face mask as at the time data were collected. Majority of the people believed it was not necessary to use face mask. A significant number of the respondents could not also use face mask because of hike in price. There is currently no consensus on the use of face mask by healthy people in public places. However, the Centres for Disease Control and Prevention (CDC) has

recommended the use of face mask in areas where there is significant community-based transmission [16]. The WHO also recommends the use of face masks to population at risk of exposure and the vulnerable groups [17]. In Nigeria, where there is no efficient public health alert system, reliable disinfection programme, and increase in the transmission rates in many major cities, the government and the local public health agencies of the country have made the right decision in making the wearing of face mask compulsory in public places.

The use of vitamins was the most common preventive chemotherapy used by our respondents. Although an earlier study supported the use of vitamins for the management of COVID-19 [19], a more recent review of the evidence on the use of vitamin D for treatment or prevention in COVID-19 rebuffed this [18].

Older adults and those who visited crowded places were more likely to have a self-perceived risk of contracting COVID-19 from our study. These are not surprising results because documented risk factors for transmission of COVID-19 include older age and overcrowding. These results therefore underscores the importance of physical and social distancing across all age groups with additional focus on the older population. Females and married persons were less likely to have a self-perceived risk of contracting COVID-19. Reasons why this was so is not so clear and more research may need to be conducted to determine the reason for this.

One of the limitations of this study was that the uneducated people and those living in rural areas who are likely to be more vulnerable due to poor knowledge and poor preventive measures practices were not represented in this study. It is therefore very important to conduct similar study among the uneducated and rural dwellers in Nigeria. Also, the online nature of the study did not permit us to conduct a focus group discussion and in-depth interview which could have further provided us with more details on the participants' responses. Despite these limitations, this study was able to add to the existing body of knowledge on COVID-19 in Nigeria.

Currently, COVID-19 is being transmitted actively in Nigeria. To effectively break the chain of transmission of the current outbreak, there is an urgent need for a robust public enlightenment about the disease. Also, physical and social distancing should be emphasized across all age groups with additional focus on the older population.

Declarations

Competing interest

Authors declare no conflict of interest

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Tables

Table 1. Sociodemographic characteristics of the respondents

Variables	Frequency (N=1022)	Percentage (%)
Age (years)		
18-39	756	74.0
40-59	230	22.5
≥ 60	36	3.5
Gender		
Male	547	53.5
Female	475	46.5
Marital status		
Married	489	47.8
Not married	533	52.2
Education		
Tertiary	904	88.5
Senior Secondary	112	11.0
Primary	6	0.6
Religion		
Christianity	956	93.5
Islam	56	5.5
Others	10	1.0
Occupation		
Trading	101	9.9
Civil Servant	412	40.3
Farming	21	2.1
Self-employed	6	0.6
Student	241	23.6
Unemployed	79	7.7
Others	162	15.9

Table 2. COVID-19 information which respondents have heard about

Variables	Frequency (N=1022)	Percentage (%)
Information domain*		
Transmission	962	94.1
Prevention	934	91.4
Management	668	65.4
People at risk	774	75.7
Others	40	3.9
Frequency of hearing about COVID-19		
Very often	810	79.3
Often	158	15.5
Sometimes	41	4.0
Never	13	1.3
Sources of information*		
Internet	991	97.0
Radio	545	53.3
Television	797	78.0
Health centres	205	20.1
Friends	593	58.0
Community members	270	26.4
Church	416	40.7
Mosque	35	3.4
Others	31	3.0

*Multiple response

Others (information domain); conspiracy theories, benefit of good hygienic practices, data and statistics, death rate, economic impacts, genotypic mutation, convalescent plasma therapy, pathophysiology, diagnosis, morphology Others (sources of information); WHO, NCDC, UNICEF, newspaper, place of work, university led webinar, seminar/training, books, family members

Table 3. Knowledge about COVID-19 (N = 1022)

Variables	Correct response	Percentage (%)
Eating or contact with wild animals could result in infection with COVID-19	312	30.5
COVID-19 spreads via respiratory droplets of infected individuals when they sneeze or cough	999	97.7
No transmission of COVID-19 without fever or other symptoms	723	70.7
Money can serve as vehicle of COVID-19 transmission	839	82.1
Older people are more likely to have severe COVID-19	912	89.2
Chronic illnesses is associated with severe COVID-19	822	80.4
Non-obese condition is associated with severe COVID-19	509	49.8
Symptoms of COVID-19		
Fever	913	89.3
Fatigue	484	47.4
Cough	974	95.3
Muscle pain	316	30.9
Sneezing	889	87.0
Persons infected with COVID-19 have lesser frequency in occurrence of common cold-associated symptoms	470	46.0
Not all persons with COVID-19 will develop severe cases of the disease	882	86.3
Most people infected with the COVID-19 die from it	720	70.5
No effective cure for COVID-19 but early management of infection can aid recovery	968	94.7
Antibiotics can be used to treat the COVID-19	510	49.9
Wearing of face mask can protect against infection with COVID-19	852	83.4
Children and young adults need not take measures to prevent against COVID-19 because the disease is more severe among old adults	878	85.9
Avoidance of crowded places is necessary for COVID-19 prevention	1004	98.2
Coronavirus disease can be prevented by avoiding the use of public transportation	949	92.9
Coronavirus disease can be prevented by staying at home during transmission period	1003	98.1
Coronavirus disease can be prevented by washing of hands regularly with soap and water under running tap	1007	98.5
Coronavirus disease can be prevented by covering of mouth and nose while sneezing or coughing	989	96.8
Isolation and treatment of people who are infected with COVID-19 are effective ways to reduce the spread of the virus	1004	98.2
People who have contact with someone infected with COVID-19 should be isolated immediately in a designated isolation centre	999	97.7
The observation period during isolation of people who are infected with COVID-19 is 14 days	975	97.4

*Multiple response

Table 4. Perceptions about COVID-19

Variables	Frequency (N=1022)	Percentage (%)
COVID-19 outbreak in Nigeria is real		
Strongly Agree	740	72.4
Agree	267	26.1
Disagree	7	0.7
Strongly Disagree	8	0.8
COVID-19 is a disease of the rich people		
Strongly Agree	26	2.5
Agree	60	5.9
Disagree	458	44.8
Strongly Disagree	478	46.8
Total lockdown of the nation will help to control the spread of COVID-19		
Strongly Agree	541	52.9
Agree	405	39.6
Disagree	63	6.2
Strongly Disagree	13	1.3
Compliance with preventivemeasures will curtail the spread of COVID-19 over time		
Strongly Agree	683	66.8
Agree	324	31.7
Disagree	12	1.2
Strongly Disagree	3	0.3
The Nigerian government is handling the problem with the COVID-19 well		
Strongly Agree	72	7.0
Agree	481	47.1
Disagree	352	34.4
Strongly Disagree	117	11.4
I have confidence that Nigeria can win the battle against the COVID-19		
Strongly Agree	569	55.7
Agree	410	40.1
Disagree	35	3.4
Strongly Disagree	8	0.8

Table 5. Self-perceived risk of contracting COVID-19

Variables	Frequency (N=1022)	Percentage (%)
Self-perceived risk of contracting COVID-19		
No	859	84.1
Yes	163	15.9
Reasons for not being at risk of contracting COVID-19*		
I always avoid crowded places	706	69.1
I wash my hands always with soap underrunning Tap	688	67.3
I always take chloroquine, herbs and other medications as preventive measures	42	4.1
I always use hand sanitizer	486	47.6
I always use face mask whenever I go out	218	21.3
Others	123	12.0

Table 6. Adherence to COVID-19 preventive measures

Variables	Frequency	Percentage (%)
Visitation to crowded place in recent times		
Yes	194	19.0
No	828	81.0
Regular hand washing with soap and water under a running tap		
Very often	626	61.3
Often	297	29.1
Sometimes	92	9.0
Never	7	0.7
Use of hand sanitizer		
Always	644	63.0
Rarely	328	32.1
Never	50	4.9
Reasons for a rare or non-usage of hand sanitizer		
I can't afford it	101	9.9
I don't know where to buy it	4	0.4
It is scarce to get	105	10.3
It is not necessary	103	10.1
Others	65	6.4
Wearing of face mask when leaving home in recent times		
Yes	368	36.0
No	654	64.0
Reasons for non-usage of face mask		
I can't afford it	49	4.8
Price hike	101	9.9
I don't know how to use it	4	0.4
I don't know where to buy it	50	4.9
It is not necessary	334	32.7
I have been indoor	90	8.8
Others	26	2.5
Compliance with stay at home instruction from the government		
Yes	894	87.5
No	128	12.5
Reasons for non-compliance with stay at home instructions		
I earn daily income	33	3.2
My employer is not releasing me from work	25	2.4
I am on grade level 13 and above, so I have to go to work	18	1.8
I have urgent matters to attend to	31	3.0
I need to attend church or mosque	2	0.2
Others	19	1.9

History of self-treatment with perceived preventive drugs against COVID-19 since the outbreak

Yes	288	28.2
No	734	71.8
Common medications used for self-prevention against of COVID-19		
Chloroquine	16	1.6
Antibiotics	17	1.7
Vitamins	220	21.5
Other	35	3.4

Table 7. Predictors of self-perceived risk of contracting COVID-19

	<u>Self-perceived risk of contracting COVID-19</u>		P-value†	Adjusted OR (95% CI) ‡	Adjusted P-value§
	Yes (%)	No (%)			
Age (years)					
18-39	14.7	85.3		1.00 (Reference)	
40-59	18.7	81.3	0.111	2.05 (1.217-3.435)	0.007*
≥ 60	25.0	75.0		4.68 (1.888-11.583)	0.001*
Gender					
Male	19.7	80.3		1.00 (Reference)	
Female	11.6	88.4	<0.0001	0.51 (0.352-0.751)	0.001*
Marital status					
Married	14.9	85.1		0.53 (0.321-0.888)	0.016*
Not married	16.9	83.1	0.393	1.00 (Reference)	
Occupation					
Trading	18.8	81.2		1.318 (0.724-2.398)	0.366
Civil Servant	16.7	83.3		1.00 (Reference)	
Farming	9.5	90.5	0.597	0.360 (0.078-1.662)	0.191
Student	16.6	83.4		1.201 (0.690-2.090)	0.517
Others	13.4	86.6		0.700 (0.425-1.155)	0.163

† P-value in Chi-square test; ‡ Adjusted odds ratio in logistic regression (confidence interval); § Adjusted P-value in logistic regression;

*Significant values Others; Self-employed, unemployed

Table 7 (continued). Predictors of self-perceived risk of contracting COVID-19

	Self-perceived risk of contracting COVID-19		P-value [†]	Adjusted OR (95% CI) [‡]	Adjusted P-value
	Yes (%)	No (%)			
Frequency of hearing about COVID-19					
Very often	17.0	83.0		1.00 (Reference)	
Often	13.3	86.7	0.159	0.73 (0.430-1.207)	0.213
Sometimes/Never	9.8	90.2		0.39 (0.125-1.199)	0.100
Visitation to crowded place in recent times					
Yes	24.2	75.8		2.27 (1.499-3.448)	<0.001*
No	14.0	86.0	< 0.0001	1.00 (Reference)	
Regular hand washing with soap and water under a running tap					
Very often	13.8	86.1		1.00 (Reference)	
Often	18.5	81.5	0.125	1.25 (0.835-1.863)	0.280
Sometimes	21.7	78.3		1.69 (0.926-3.096)	0.087
Never	14.3	85.7		0.49 (0.056-4.342)	0.523
Use of hand sanitizer					
Always	16.6	83.4		1.00 (Reference)	
Rarely	13.7	86.3	0.247	0.70 (0.466-1.058)	0.091
Never	22.0	78.0		1.29 (0.613-2.730)	0.499
Compliance with stay at home instruction from the government					
Yes	15.2	84.8		1.00 (Reference)	
No	21.1	78.9	0.089	1.16 (0.791-1.915)	0.566
History of self-treatment with perceived preventive drugs against COVID-19 since the outbreak					
Yes	17.4	82.6		1.15 (0.782-1.691)	0.479
No	15.4	84.6	0.440	1.00 (Reference)	

[†] P-value in Chi-square test; [‡] Adjusted odds ratio in logistic regression (confidence interval); [§] Adjusted P-value in logistic regression; *Significant values