

# A Cross-sectional Online Survey on Knowledge, Attitude, and Perception of COVID-19 among Ghanaians

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## Research Article

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# Abstract

This study examined knowledge, attitude, and perceptions of COVID-19 among Ghanaians. A cross-sectional survey was conducted using *Google forms* to recruit 503 participants over six weeks. We performed descriptive statistical analysis, and presented results in tables/charts. From the results, 66.4% of respondents depended on social media for COVID-19 related information, and 59.8% mostly heard/read about preventive measures in all COVID-19 information heard/read. Knowledge was adequate, but with noticeable gaps. Attitude was generally positive, with 84.1% willing to accept reintegration of treated COVID-19 patients. Perceptions were healthy, with only 3.8% perceiving insusceptibility. We conclude that these findings contribute significantly to the literature on COVID-19 in Ghana. We recommend the continuous use of social media by the Government of Ghana and relevant stakeholders for COVID-19 communications, and further research in the general population for evidence based COVID-19 prevention interventions in Ghana.

## 1. Introduction

### 1.1 Background

Infections from viruses are of public health importance, as they frequently complicate the course of treatment (Eun-Hyung & Treanor, 2016). Over the years, there have been several viral disease outbreaks with their origins from animals. For instance, the Severe Acute Respiratory Syndrome (SARS) outbreak originated from bats of the genus *Rhinolophus*, and its human emergence is believed to have been facilitated through intermediate hosts in the wet markets of southern China. The H1N1 influenza epidemic arose in North America primarily through the re-assortment of viruses of swine origin (Wang, 2007; Webster, 2004). The various strains of the Ebola virus originated from the blood, secretions, organs, or other bodily fluids of infected animals such as fruit bats, chimpanzees, gorillas, monkeys, forest antelope or porcupine found ill or dead or in the rainforest (WHO, 2020a).

Such outbreaks and pandemics like the Coronavirus disease have demonstrated the vulnerability of humans to the threats they pose to us. They have also exposed our inability to predict or prevent such events (Pike, et al., 2010). The outbreak of the Coronavirus Disease in 2019 (COVID-19), a disease that occurs due to an infection from a novel coronavirus (2019-nCoV or SARS-COV-2), is yet another evidence of global human vulnerability to emerging disease outbreaks and zoonotic diseases specifically.

This novel coronavirus is among a family of viruses that may cause various symptoms such as pneumonia, fever, breathing difficulty, and lung infection (WMHC, 2020). The COVID-19 epidemic broke out in Wuhan, China, in late 2019. By the middle of March 2020, the disease had spread to countries in Asia, Europe, North and South America, Africa and Oceania. In response to a global concern, the World Health Organization (WHO) declared COVID-19, a pandemic on 11th March 2020. On 12th March, 2020, the European Region was declared as the new epicenter of the pandemic away from Wuhan, China, with more than 20,000 cases and about 1000 deaths in the region (WHO, 2020b).

Most people infected with the COVID–19 virus experience mild to moderate respiratory illness and recover without requiring special treatment. Older people and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness (WHO, 2020c; Worldometer, 2020).

To control the spread of the disease, the WHO outlined the following protocols to be observed: washing hands frequently with soap, under running water, or using alcohol based hand-sanitizing gel; maintaining social distance/physical distance of 1 meter (3 feet) or more between persons; avoiding touching of the eyes, nose and mouth; observing respiratory hygiene etiquette (by covering mouth and nose with the bent elbow or tissue when one coughs or sneezes); seeking medical care early when one has a fever, cough and difficulty breathing; as well as, staying informed and following advice given by health-care providers, national and local public health authorities on all the COVID–19 preventive protocols (WHO, 2020b).

Subsequently, countries across the globe took measures to contain the spread of the disease, implementing various levels of restrictions of movement of people. There were also travel restrictions, and the closure of academic institutions and other social gatherings. That notwithstanding several countries recorded daily increases in the disease incidence. Reports on 7th August, 2020, showed that the total number of Global confirmed cases stood at 19, 257,695, out of which 1, 011,872 were recorded among some 57 African Countries including Ghana (Worldometer, 2020). During the same period, 717,687 COVID–19 related deaths were recorded globally, out of which 22,114 were recorded among these 57 African countries, excluding Eritrea and Seychelles (Worldometer, 2020).

On 14th February, 2020, Egypt became the first African country to confirm a case of the disease. By 1st April, 2020, Forty-two (89%) out of 47 Member States of the WHO African Region were affected. The most affected countries in the WHO African Region were: South Africa (1, 353 cases), Algeria (584 cases), Burkina Faso (261 cases), Senegal (175 cases), Cote d'Ivoire (169 cases), and Ghana (152). Together, these countries accounted for 72% of the cases reported in the region (WHO, 2020d).

In Ghana, the first two cases of COVID–19 were recorded on 15th March, 2020. By 7th August, 2020, the number of confirmed cases stood at 39,642, with 36,284 recoveries and 199 deaths (Ghana Health Service, 2020a; Worldometer, 2020). In response to control measures, the President of Ghana, acting on the Imposition of Restrictions Act, 2020 (Act 1012), imposed restrictions on movement of people (Ghana Health Service, 2020b).

Viral infections pose ever-increasing challenges to public health and safety. Their high mutation rates enable viruses to easily develop drug resistance towards conventional therapeutics, which mainly inhibit essential viral proteins. This increases the levels of risk and severity associated with the outbreak of a novel viral disease, since most of the current antiviral drugs are hardly efficacious against the resistant strains of viruses (Durmus & Ülgen, 2017).

In the anxious wait for the development of more rapid and effective therapeutics and vaccines to combat the disease, the fight remains that of a collaborative effort. But in the absence of a known vaccine,

effective control of the disease rests largely with primary preventive measures which require good knowledge, attitude, and perceptions about the disease among the population, the reason why this study sought to examine the knowledge, attitude and perception of the disease among Ghanaians. The findings in this study will thus serve as evidence for policy adjustments for the prevention and control of COVID-19 in Ghana.

## **2. Materials And Methods**

### **2.1 Study design**

A cross-sectional study was conducted among Ghanaian internet users. Ghanaians on various social media platforms were invited to complete a self-administered questionnaire through a link.

### **2.2 Sampling**

A total of 503 respondents completed the self-administered online questionnaire which was designed using Google forms. A minimum required sample size of 385 was calculated using Raosoft, an online sample size calculator (Raosoft Inc., 2004), with the following assumptions: a 5% margin of error, 95% confidence interval, 50% response distribution, and 25,000,000 population of Ghanaians actively online as our assumptions.

#### **2.2.1 Inclusion and exclusion criteria**

The study was delimited to only Ghanaians who were resident in Ghana and online at the time of the study. The form was then designed to deny access to a respondent who answered “No” to the compulsory question of whether they were Ghanaians who were currently leaving in Ghana.

### **2.3 Study Instrument**

The questionnaire asked questions on Knowledge including how they got information on COVID-19, which types of information were most commonly known to them, and how frequently they were exposed to education on preventive measures of the disease. Their attitudes were assessed by knowing which of the impacts of COVID-19 were of most concern to them, how they related with treated COVID-19 patients, and how frequently they observed the preventive measures of the pandemic, as outlined by the WHO. Their perceptions were then assessed by getting responses their perceived susceptibility, disease severity, and efficacy of medical care given to people with COVID-19. They were also asked self-efficacy questions such as how they perceived their abilities to observe the preventive measures as outlined by the WHO.

## 2.4 Data collection

An invitation link to participate in the study was sent to participants through Emails, WhatsApp, and Facebook, which directed them to the questionnaire on *Google forms*. The data was collected from 27th April, 2020 to 15th June, 2020. The data collection instrument was pre-tested on five (5) Ghanaian students who were studying outside Ghana at the time of data collection from 23<sup>rd</sup> April to 26 April, 2020, after which necessary corrections were made.

## 2.5 Data analysis

The Statistical Package for Social Sciences (IBM SPSS) version 20.0 was used for data cleaning and analysis, after the data were downloaded from the Google server. Microsoft Excel (MS-Excel 2010) was employed in generating the charts and tables. The data analysis was descriptive with the aim of describing the study variables and their distributions through the univariate and bivariate analysis. The results were presented in frequency tables and charts.

## 2.6 Ethical consideration

This study was carried out in accordance with the 1964 Helsinki declaration and its later amendments on research ethics. The study participants were adequately informed about the study, and assured of confidentiality and anonymity. Their autonomy was assured since this was an online study using a self-administered questionnaire. Consent was also obtained before access to survey instrument was granted. Study participants were not required to submit their email addresses before having access to the questionnaires. However, participants, who were interested in knowing the study results, were asked to voluntarily submit their email addresses. These addresses were separated from their responses to anonymise and de-identify the data, and were secured with the researchers for the sole purpose of communicating the study findings.

## 3. Results

### 3.1 Demographic Characteristics of Respondents

The results in Table 1 show the demographic characteristics of the 503 study respondents. The majority, 241 (47.9%) of respondents were adults age 25 to 54 years, with the youth, age 15 to 24 years, being the second highest 238 (47.3%) age group in this study. There were 350 (69.6%) male, to a 153 (30.4%) female population. And, majority of the respondents had had tertiary education, 375 (74.5%); were Christians, 392 (77.9%); and had never been married, 348 (69.2%). There was however no observation for respondents age less than 15 years.

## 3.2 Knowledge of Respondents on COVID–19

Figure 1 shows that knowledge about COVID –19 among respondents was generally good, and exposure to Information, Education and Communication messages on COVID–19 and its prevention was nearly universal.

The majority of respondents indicated that they “often” or “very often” heard or read information concerning: use of alcohol-based hand sanitizing gel, 460 (91.4%); and frequent washing of hands with soap under running water, 421 (83.7%). Over all, between 33.6% and 42.5% of respondents reported that they were either “often” or “Very often” exposed to each of the recommended COVID–19 infection prevention protocols.

It was also important to know respondents’ sources, providers, and types of COVID–19 IEC messages frequently heard. This study discovered that majority, 334(66.4%) of respondents got informed about the disease through social media channels. Correspondingly, the most heard/read about Information, Education and Communication messages that were communicated to respondents were on preventive measures, where 301 (59.8%) of respondents confirmed their exposure to these messages.

However, families were the least reported source of information on the disease, only ahead of newspapers which recorded no response (See Table 2).

## 3.3 Attitude of respondents towards COVID–19

Table 3 shows responses to a series of questions on what concerns respondents most about the pandemic. Personal infection was of most concern to a majority, 141(28.0%), of respondents. Global infection, 108 (21.5%), and Local infection, 106 (21.1%), equally saw significant proportions of the respondents being concerned about them.

Relative to respondents’ willingness to accept the reintegration of treated COVID–19 patients into their communities (as a measure of their tendency to stigmatise), nearly half, 251 (49.9%), of the respondents were highly willing to accept reintegration of treated patients into their communities. Nonetheless, a significant proportion 80 (15.9%) of respondents indicated that they were less willing to accept the reintegration of treated COVID–19 patients into their vicinities (see Table 3).

To further understand respondents’ attitude towards the pandemic, we asked question relating to their adherence to the infection prevention protocols. Figure 2 is a representation of responses to these further attitude questions. Some 188 (37.4%) respondents washed their hands very often, while 236 (46.9%) only did that often. Between 13.0% and 37.4% of respondents adhered to the infection prevention protocols very often while another 31.0% to 48.7% only adhered to them often. Only a minority (1.0% - 6.0%) of respondents did not show positive attitude by indicating they did not adhere to the recommendation to observe the protocols (see Figure 2).

## 3.4 Perceptions of respondents on COVID–19

There were mixed perceptions among study participants. For instance, although up to 241 (47.9%) respondents rated their susceptibility as high, another 168 (33.4%) thought they were only moderately susceptible. Similarly, a majority, 230 (45.7%), perceived the disease as moderately severe while another 93 (18.5%) thought the treatment protocols used in Ghana was less efficacious for the management of the disease (See Figure 3).

The results further showed that whereas 141 (28.0%) of respondents perceived that they were highly able to frequently wash their hands, 276 (54.9%) others thought they were only able to wash their hands. Conversely, 86 (17.1%) of them perceived that they were less, or not at all able to frequently wash their hands with soap under running water. Majority of them were less, or not at all able to avoid touching of their face, 275 (54.7%); and observe respiratory hygiene, 224 (44.5%). Additionally, a significant proportion, 197 (39.2%) respondents perceived that they would be less, or not at all able to seek early medical care if they suspected they were infected (see Table 4).

## 4. Discussion

### 4.1 Knowledge of Respondents on COVID–19

In the fight against the Coronavirus Pandemic, one key measure several Governments, the WHO, and other stakeholders have adopted is the periodic sharing of information about updates on preventive protocols, new cases, new deaths and new recoveries. The study results demonstrate that 66.4% of the respondents depended on social media for most of the information they got about COVID–19 in Ghana. Like the results obtained by an earlier study by Abdelhafiz et al. (2020), and another, that was conducted among South Africans, Kenyans and Nigerians, and published online, the use of social media was a predominant channel over more traditional channels like TV, Radio, Newspapers, Family and Friends (Abdelhafiz, 2020; GeoPoll, 2020). Quite expectedly, the use of Newspapers was not recorded by any respondent as their most used channel of information. This may be due to the restrictions imposed by the Government on the operations of businesses and movement of people. This is because, in Ghana, people usually buy their newspapers while they are out of the houses, as it is uncommon to have individual newspaper subscriptions where these papers are regularly delivered at home. The rest who would usually benefit from their employers' subscription will also miss out due to the restrictions. Again, in spite of the fact that the virus is transmissible through the touching of surfaces, people might have been conscious about touching objects in trying to prevent potential contamination of their hands and onwards touching of their face as part of improvement in the knowledge of the infection prevention protocols.

One thing that became of great concern in this period of the pandemic was the dissemination of inaccurate and fake news about the virus. With the growing access to, and use of internet and social media, health professionals and scientists are able to have direct interactions with peoples by sharing accurate information on awareness, safety measures, and emerging researches (Alejandro, 2020). On the

other hand, several people spread sensational rumor, misinformation, and disinformation, making the fight against the pandemic a difficult one (Jayaseelan, Brindha, & Waran, 2020). While it is encouraging that up to 77.9% of the respondents involved in this survey got most of the information they had about the disease from Health Professionals, it is worrying that others may not be receiving the accurate information, needed for the effective fight against the pandemic. To control the spread of an infectious disease like COVID-19, epidemiologists must have an understanding of the epidemiological triad of the disease, which is the interplay between the agent, host and environment (Johnson-Walker & Kaneene, 2018). This provides further information on preventive measures, risk factors, and treatment methods, nature of the virus, and its mode of transmission. From the study results, there appears to be much focus on preventive measures of the virus by providers of information as 60% of the respondents established it as the most common information they had received. This, the researchers believe to be appropriate for public health and safety, as regards COVID-19 prevention and control among the general population.

As a measure to control the spread of the disease, the World Health Organization on 12th March, 2020, outlined the following protocols to be observed; washing hands frequently with running water and soap or using alcohol based hand-sanitizing gel; maintaining social distancing (keeping a distance of 1 meter (3 feet) between oneself and anyone who is coughing or sneezing); avoiding touching eyes, nose and mouth; observing and following respiratory hygiene etiquette (covering your mouth and nose with your bent elbow or tissue when you cough or sneeze, then disposing of the used tissue immediately); seeking medical care early when one has a fever, cough and difficulty breathing; and staying informed and following advice given by health-care providers, national and local public health authorities, or employers on how to protect yourself and others from COVID-19 (WHO, 2020b). Subsequently, a series of public education on the pandemic have focused on educating the people about these safety measures in Ghana (Agyeman-Manu, 2020). This information appears to have been circulated well in Ghana. This is because, from the study results, except for the avoidance of touching of eyes, nose, and mouth, all the other preventive protocols as outlined by the WHO, were very often and often read or heard about by over 70.0% of the respondents in each case. The most commonly circulated public education was about the frequent use of alcohol-based hand sanitizing gel, followed by the frequent washing of hands with soap under running water.

## **4.2 Attitudes of Respondents towards COVID-19**

The respondents had varying views about what concerns them most about the impact of the pandemic. For the top three concerns, 70.6% of respondents were more concerned about personal infections, global infections, and local infections. While there have been widespread outcries about the impact of COVID-19 on economies, only 7.0% of the respondents considered that to be of more concern. A similar study conducted among South African, Kenyans and Nigerians, and published online also found Global and personal infections as among the first three commonest impacts people were concerned with (GeoPoll, 2020). However, unlike in this current study, Economic Impact was part of the first three concerns in that earlier study. One thing that has been of great concern is the stigmatization against people with COVID-

19 and their families, even after they have been declared treated by health officials. There have been several such reports of discrimination in Ghana (Awuni, 2020; Citi Newsroom, 2020a, 2020b; Noi, 2020). Contrary to such reports, results from this study show that a total of 84.1% of the respondents indicated they were highly willing or willing to accept the integration of COVID-19 treated patients into their communities. In fact, about half (49.4%) of the respondents specifically indicated that they were highly willing to do that. Nonetheless, even though none of the respondents showed sharp tendencies to stigmatise patients by not indicating unwillingness to accept reintegration of treated patients, a significant (15.9%) proportion of them were less willing. This was an indication that there is a real and potential threat of stigmatizing attitude among the study population. It is however assumption that if our study participants who had some level of formal education and were more inclined to be more informed were exhibiting unfavorable attitudes towards patients, the situation could be worse among the general Ghanaian population.

From the study results, the majority of respondents demonstrated an overall impressive attitude towards the observation of the preventive measures as outlined by the WHO. In fact, some 84.3% of respondents reported frequently washing of hands with soap under running water, 77.1% frequently used alcohol-based hand-sanitizing gels and so on. However, quiet not surprisingly, more than half of the study participants could not as often as possible, avoid touching their eyes, nose, and mouth.

## 4.3 Perceptions of respondents on COVID-19

People perceive differently their susceptibility to getting a particular disease, how severe the disease is, and how efficacious treatments given to people with the disease are. This was true in this study, as results show that different respondents expressed that they were highly susceptible, moderately susceptible, less susceptible, or not susceptible at all. It is impressive to recognise that only 3.8% of the study participants indicated that they were not susceptible at all. Evidence exists that people who perceive that they are susceptible to a particular disease are more likely to take preventive actions than those who do not feel susceptible (Jones, Jensen, Scherr, Brown, Christy, & Weaver, 2015; Joseph, Burke, Tuason, Barker, & Pasick, 2009). Indeed, according to the WHO the virus infects people of all ages, although older people and people with underlying medical conditions are at higher risks of the disease severity. WHO advises that all must protect themselves from COVID-19 to protect others (WHO, 2020e).

Similarly, respondents expressed different views about how they perceive the severity of the disease. While almost all the study participants perceived some degree of severity of the disease, just 0.8% felt that the disease is not severe. This shows a positive perception as people who perceive that a particular disease is severe are more likely to adopt preventive measures against the disease (Jones, Jensen, Scherr, Brown, Christy, & Weaver, 2015; Joseph, Burke, Tuason, Barker, & Pasick, 2009). The efficacy of medical care given to people with COVID-19 was also expressed in different terms by the study respondents. Again, just 1% of them believe that these medical attentions are not efficacious.

The ability of people to perform the various preventive measures against COVID–19, as presented by the WHO is an important part of our collective fight. The study results show that an impressive 82.9% of the respondents expressed that they were either highly able or able to frequently wash their hands with soap under running water. However, results on the ability of participants to frequently use alcohol-based hand-sanitizing gel; ability to observe social distancing, ability to seek medical care early, when fever, cough and difficulty breathing show; and ability to stay informed and following advice on COVID–19 were not satisfactory. What was more disturbing, although not very surprising, was that only 55.5% of study participants were highly able, or simply able to frequently observe respiratory hygiene, and, less than half (45.3%) reported that they were highly able or only able to avoid touching their eyes, nose, and mouth frequently.

## 4.4 Limitation

Because this was an online survey in design, the study faced a limitation where people who were less formally educated and could not complete the self-administered questionnaire and/or were not online at the time of data collection might have been excluded, but whose inclusion could have influenced the results in this study. This requires cautious interpretation and limits generalizability. It is also reasonable to suspect that because this was a self-administered questionnaire it might have led to some response bias. However, due to the large sample size, design of the questionnaire, and the adherence to ethical procedures including the assurance of anonymity and confidentiality of data, the researchers believe that the results in this study have not been biased.

## 4.5 Conclusions

This article concludes that it has made a significant contribution to the body of science that can be depended on for evidence based policy formulation for COVID–19 in Ghana. It also resolves that the use of social media platforms by the government and other stakeholders for COVID–19 information, education, and communication is commendable and must be continued especially for the benefit of the youth and social media active population in Ghana. There is an impressive level of positive attitudes towards the practice of the various preventive measures as outlined by the WHO among the study participants. Although the majority of Ghanaians do not deny their susceptibility to getting the disease, a significant proportion perceives COVID–19 not to be severe. However, because majority of respondents indicated that they were unable to avoid touching their faces, we recommend that Ghanaians should develop the habit of using face shields, to help prevent how often they would have directly touch their faces and possibly pass on an infection. Finally, there is urgent need for anti-stigma communications to mitigate its negative effects in Ghana.

## Abbreviations

COPD – – chronic obstructive pulmonary disease

COVID-19	–	–	Coronavirus Disease, 2019
H1N1	–	–	An influenza virus strain
IEC	–	–	Information, Education and Communication
SARS	–	–	Severe Acute Respiratory Syndrome
SHS	–	–	Senior High School
SPSS	–	–	Statistical Package for Social Scientist
SSS	–	–	Senior Secondary School
WHO	–	–	World Health Organization

## Declarations

## Data Availability

The data underlying the findings of this study are available on reasonable request to the first author ([akuokoebenezer@gmail.com](mailto:akuokoebenezer@gmail.com))

## Ethical Approval

N/A

According to the GHS-ERC guidelines/standard operating procedures; Research studies that are of minimal risk, such as survey procedures, interview procedures, or observation of public behaviour, are exempt for ethical review/clearance. EXCEPT, if information is obtained in a manner that subjects can be identified; and any disclosure of human subjects' responses outside the research could reasonably place subjects at risk of harm. Our study, which was online and self-administered, posed no harm to our subjects other than the psychological burden of responding to the questions, which is not different from their daily psychological requirements in life. Our study on Knowledge, Attitude and Perception is survey observing public behaviour, which can be likened to a market survey, and is thus exempt for ethical clearance as provided for by the GHS - ERC.

## Consent

Informed consent was obtained from all participants for this study.

## Conflicts of Interest

The authors declare that there is no conflict of interest regarding the main research, authorship and publication of this paper.

## Authors' Contribution

EA conceived the main study and CA contributed to its design. EA and CA contributed to data collection, analysis, or interpretation. EA drafted the manuscript, and both authors critically revised the manuscript for intellectual suitability. Both authors approved the revised manuscript and accept responsibility for all aspects of the work and its content.

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## Tables

**Table 1:** Socio-demographic attributes of respondents.

Socio-demographic characteristic	Frequency	Percentage
	(n)	(%)
<b>Age groups (Years)</b>		
<15	0	0.0
15-24	238	47.3
25-54	241	47.9
55+	24	4.8
<b>Total</b>	<b>503</b>	<b>100.0</b>
<b>Sex</b>		
Male	350	69.6
Female	153	30.4
<b>Total</b>	<b>503</b>	<b>100.0</b>
<b>Educational Background</b>		
Primary education	5	1.0
Middle/JSS/JHS	25	5.0
Secondary education	98	19.5
Tertiary	375	74.5
<b>Total</b>	<b>503</b>	<b>100.0</b>
<b>Employment status</b>		
Students	280	55.7
Formal Sector employee	162	32.2
Informal Sector employee	36	7.1
Unemployed	25	5.0
<b>Total</b>	<b>503</b>	<b>100.0</b>
<b>Religion</b>		
Muslims	92	18.3
Christians	392	77.9
Traditionalists	9	1.8
Non-religious	10	2.0

<b><i>Total</i></b>	<b>503</b>	<b>100.0</b>
<b>Marital Status</b>		
<i>Never married/single</i>	348	69.2
<i>Married/In Union</i>	140	27.8
<i>Widowed</i>	9	1.8
<i>Divorced</i>	6	1.2
<b><i>Total</i></b>	<b>503</b>	<b>100.0</b>

**Source:** Survey Data, (2020)

**Table 2:** Sources, providers, and types of information on COVID-19, often heard

Source, Provider and type of IEC* on COVID-19	Frequency	Percentage
	(n)	(%)
<b>Source of IEC* on COVID-19 for respondents</b>		
<i>Social Media</i>	334	66.4
<i>Television (TV) channel</i>	128	25.4
<i>Radio</i>	35	7.0
<i>Family/Friends</i>	6	1.2
<i>Newspaper</i>	0	0.0
<b>Total</b>	<b>503</b>	<b>100.0</b>
<b>Providers of IEC* on COVID-19</b>		
<i>Health professionals</i>	392	77.9
<i>Non-health professionals</i>	111	22.1
<b>Total</b>	<b>503</b>	<b>100.0</b>
<b>Types of IEC* messages on COVID-19 often heard</b>		
<i>Prevention</i>	301	59.8
<i>Risk Factors</i>	86	17.1
<i>Treatment methods</i>	20	4.0
<i>Nature of the virus</i>	9	1.8
<i>Mode of transmission of the virus</i>	87	17.3
<b>Total</b>	<b>503</b>	<b>100.0</b>

\* **NB:** IEC means Information, Education and Communication.

**Source:** Survey Data, (2020)

**Table 3:** Most concerned with impact, and willingness to accept treated patients

Impact and willingness variables	Frequency	Percentage
	(n)	(%)
<b>COVID-19 impact of most concern to respondents</b>		
<i>Global infections</i>	108	21.5
<i>Local infections</i>	106	21.1
<i>Personal infections</i>	141	28.0
<i>Family/friends infections</i>	62	12.3
<i>Restrictions (Movement, social/religious gatherings)</i>	41	8.1
<i>Economic</i>	35	7.0
<i>Travel restrictions</i>	10	2.0
<b>Total</b>	<b>503</b>	<b>100.0</b>
<b>Willingness to accept treated COVID-19 patients back</b>		
<i>Highly willing</i>	251	49.9
<i>Willing</i>	172	34.2
<i>Less willing</i>	80	15.9
<b>Total</b>	<b>503</b>	<b>100.0</b>

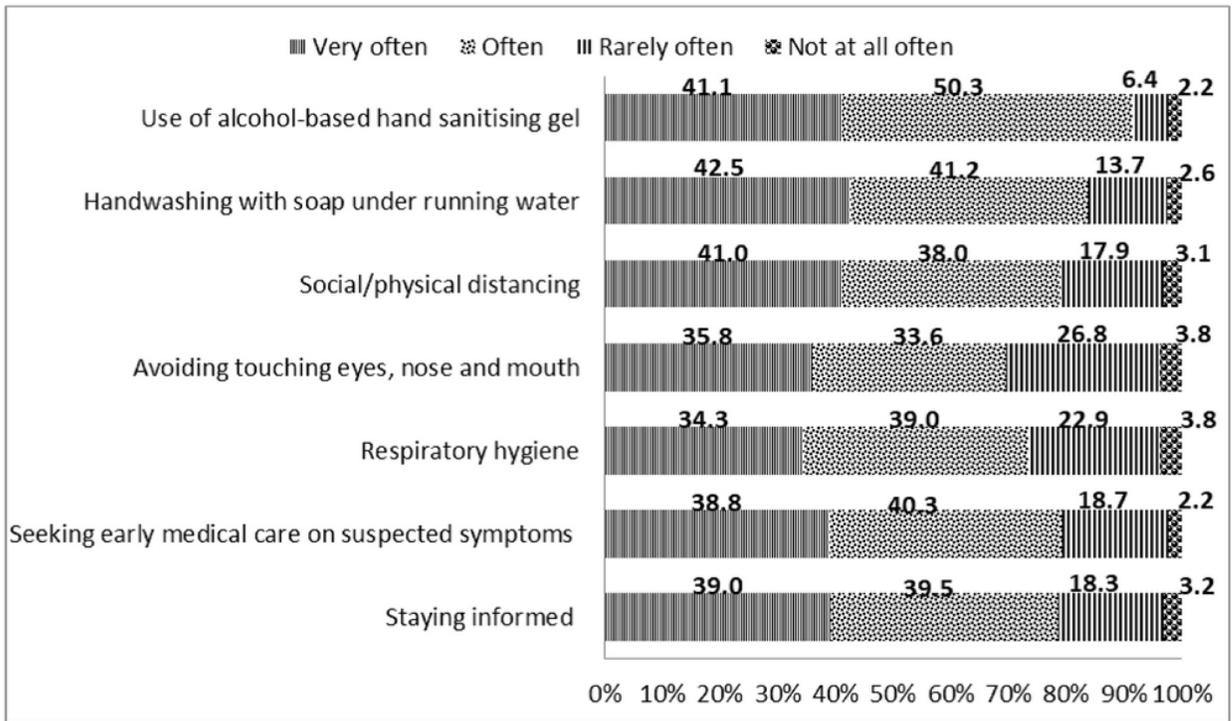
**Source:** Survey Data, (2020)

**Table 4:** Perceived ability to observe the infection prevention protocols for COVID-19

<b>Recommended Infection prevention protocol</b>	<b>Highly Able</b>	<b>Able</b>	<b>Less Able</b>	<b>Not Able</b>	<b>Total</b>
	n(%)	n(%)	n(%)	n(%)	n(%)
Frequent hand washing with soap under running water	141(28.0)	276(54.9)	77(15.3)	9(1.8)	<b>503(100.0)</b>
Frequent use of alcohol-based hand sanitizing gel	117(23.3)	226(44.9)	144(28.6)	16(3.2)	<b>503(100.0)</b>
Observing social/physical distance	117(23.3)	205(40.7)	167(33.2)	14(2.8)	<b>503(100.0)</b>
Avoidance of touching of face (eyes, nose, and mouth)	71(14.1)	157(31.2)	247(49.1)	28(5.6)	<b>503(100.0)</b>
Observing respiratory hygiene (cough etiquette)	92(18.3)	187(37.2)	208(41.3)	16(3.2)	<b>503(100.0)</b>
Seeking early medical care on suspicion of infection	106(21.1)	200(39.7)	174(34.6)	23(4.6)	<b>503(100.0)</b>
Staying informed and adhering to advice on COVID-19	105(20.9)	202(40.1)	185(36.8)	11(2.2)	<b>503(100.0)</b>

Source: Survey Data, (2020)

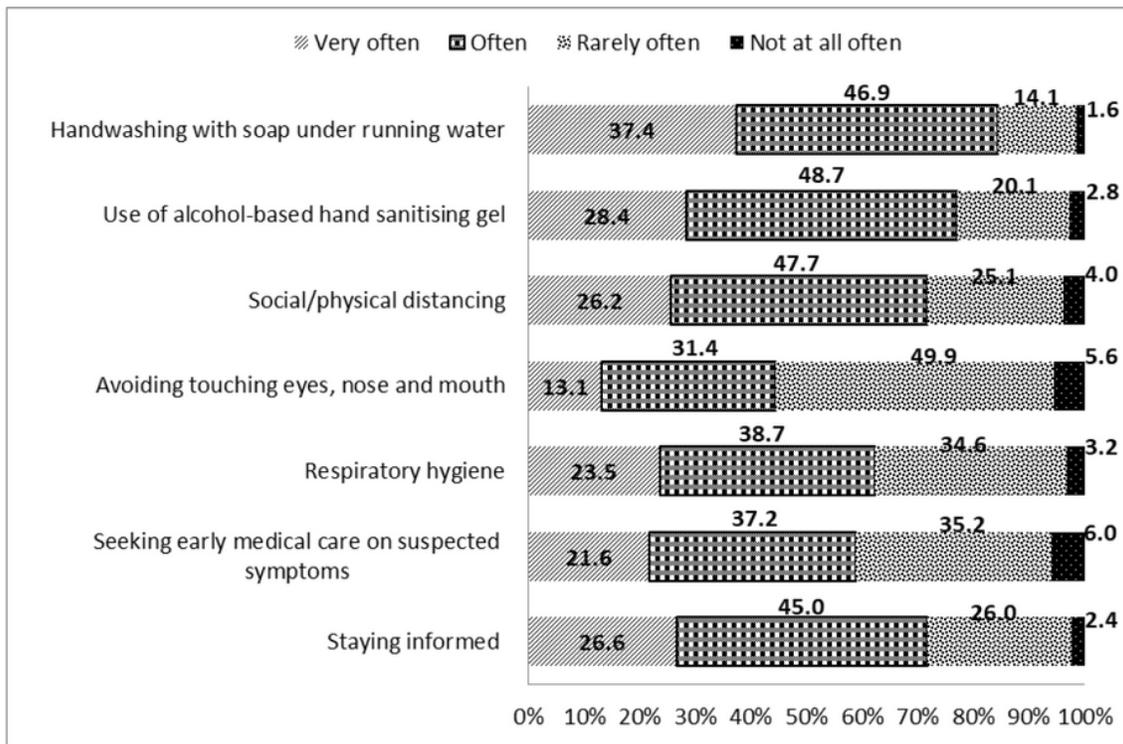
## Figures



Source: Survey Data, (2020)

Figure 1

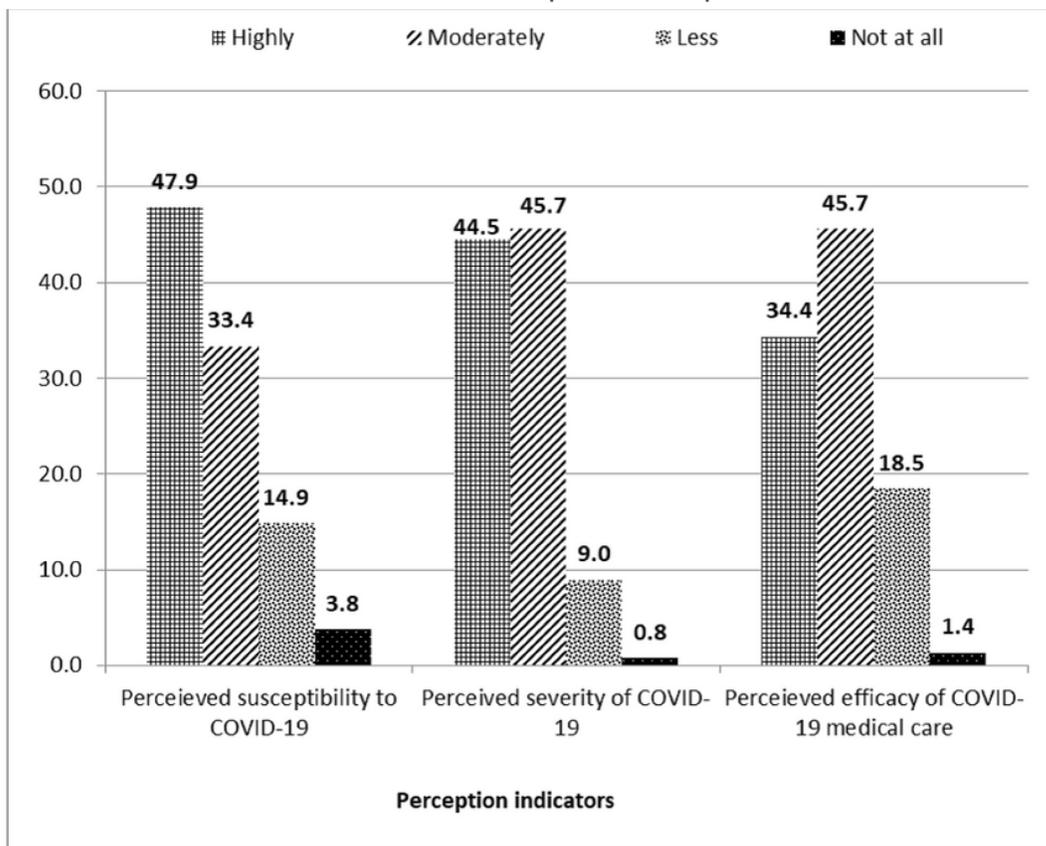
Frequencies and types of IECs heard/read on COVID-19 infection prevention



Source: Survey Data, (2020)

Figure 2

## Attitude towards adherence to COVID-19 infections prevention protocols



Source: Survey Data, (2020)

**Figure 3**

Perceived susceptibility, severity, and efficacy of current medical care, for COVID-19