

# Novel Coronavirus (COVID-19) Pandemic Knowledge and Awareness: A Survey on Junior High School Students

Abdul-Razak Issah<sup>1</sup>

<sup>1</sup>Executive Director, Fountain of Blessings for Nations (FOBNA), Tamale, Ghana.

Esmerlinda Korkor Ofoe<sup>2</sup>

<sup>2</sup>Founder, Vote the Women, Accra, Ghana.

Alhassan Suleiman<sup>3</sup>

<sup>3</sup>Hospital Corpsman, United States Navy, United States of America

**Abstract:-** The novel coronavirus was characterised by the World Health Organization as a pandemic; its sporadic spread across the globe had already infected millions of people globally. The emergence of the pandemic momentarily impacted the study life of many students globally including junior high school students in Ghana. This study assessed the knowledge and awareness of Junior High School students on the novel coronavirus (covid-19) pandemic in the Eastern and Northern Regions of Ghana. This cross-sectional survey was designed to solicit information on respondent's bio-data, knowledge on COVID-19, symptom, prevention measures and information sources about COVID-19. A multistage sampling technique was employed to collect data from 120 respondents and data analysis was performed using simple frequency tables, percentages, graphs and charts. Results indicated that the respondents were aptly aware and had adequate knowledge of COVID-19, its symptoms, people susceptible to the disease and prevention. The majority of the respondents had their information source about COVID-19 from television and radio, family and friends, government officials and that of internet and social media. Despite having thorough knowledge about COVID-19, few respondents still had misconception regarding the transmission and prevention of the disease. There is still the need for pragmatic efforts by the government, educational authorities and other stakeholders for the continuation of community and in-school sensitization on COVID-19. Imparting knowledge and creating awareness effectively and efficiently on COVID-19 will go a long way to instil good behavioural change on respondent's attitudes towards COVID-19 and curtailing the spread, prevention and control of the disease and demystifying its misconception.

**Keywords:-** Awareness, Coronavirus (COVID-19), Knowledge, Pandemic, Junior High School.

## I. INTRODUCTION

The outbreak of the Coronavirus disease (COVID-19) reported in the Wuhan, China after a cluster of patients were diagnosed with pneumonia of unknown during December 2019 [13]. According to the World Health Organization (WHO) SARS CoV-2 is identified as coronavirus disease 2019 and noted to be a viral infectious disease that is caused by a newly discovered coronavirus [9]. The COVID-19 virus affects the respiratory system and infected people with the disease experience mild to moderate respiratory illness and recovers without requiring any special treatment. Coronavirus disease quickly spread within other regions in China and to other countries as well where human to human transmission was proved [8].

As of January 13, 2020, Thailand was identified as the first spread of COVID-19 out of China. The fast spread of the disease on January 30, 2020, led the World Health Organization (WHO) to declare the Coronavirus disease a Public Health Emergency of International Concern (PHEIC) [10]. On July 21, 2020, the World Health Organization reported a total of 14,562,550 confirmed COVID-19 cases with 607,781 deaths globally [11].

The global spread prompted the World Health Organization again on 11 March 2020 to declare the outbreak of the disease as a Global Pandemic [12]. In Ghana, the Ministry of Health reported the first two cases of COVID-19 on March 12, 2020, and by the close of August 6, 2020, the country had recorded a total of 41,003 confirmed cases with 38,330 recoveries and 215 deaths [5].

Respiratory droplets are the major transmittal of COVID-19. These respiratory droplets can ensue from talks or the sneezes and coughs from an infected person. The virus can easily infect another person when released within the respiratory secretions when it makes direct contact with the mucous membranes. The disease can also be transmitted through the touch of the nose, mouth, and eyes of an infected person [7] and COVID-19 symptoms can be exposed within the period of 14 days upon the onset of the symptom of the disease, with most of the cases happening roughly around five to six days after exposure [3]. COVID-

19 mostly affects aged people and those with underlying health conditions including heart disease, lung disease and diabetes, face the high risk of developing severe COVID-19 illness [6]. There has not been any identified known vaccine or effective antiviral treatment for COVID-19 except for only symptomatic management and supportive therapy [1, 2, 4]. This study, therefore, seeks to assess the knowledge and awareness of Junior High School Students in the Eastern and Northern Regions of Ghana. It also seeks to identify the student's source of information on COVID-19.

## II. MATERIALS AND METHODS

### Sampling frame and design

The sampling frame for this study included 120 respondents' mainly basic school students from the junior high schools in Eastern and Northern regions. The study regions were selected due to the observation of the covid-19 protocols and for the purpose of accessibility and proximity

to the respondents since each of the researcher resides in one of the regions respectively. A cross-sectional survey was carried out in selected district towns in the eastern and northern regions of Ghana between the periods of August to September 2020. The study area was the Eastern and Northern regions. A multistage sampling design was used. At first, we purposively selected the two regions. In the second stage, we randomly selected five districts each from the two regions. In the third stage, randomly selected a town each from the sampled districts in stage 2. Whiles in the fourth and final stage, we conveniently chose the respondents from the town's centres, homes, at playgrounds, schools and in the market. Table 1 below provides much detail of the sampling frame and methods used in the study.

### Sample size and sampling techniques

From the sampling frame above a total population of 120 junior high school students was mainly targeted and selected for the study.

Table 1: Sampling design and sample size for COVID-19 knowledge and awareness study

| Sampling stage and sampling unit selection | <u>Eastern Region</u> | <u>Northern Region</u> | <u>Total Sample</u> |
|--|-----------------------|------------------------|---------------------|
| NS   | NS                    | NS                     |                     |
| Stage 1 (Purposive selection of regions)   | 1                     | 1                      | 2                   |
| Stage 2 (District selection)               | 5                     | 5                      | 10                  |
| Stage 3 (Town selection)                   | 5                     | 5                      | 10                  |
| Stage 4 (Student selection)                | 60                    | 60                     | 120                 |

**Legend:** N = Number, S = Selected.

Source: Online field survey, 2020.

Data collection was done through the use of closed-ended questionnaire design online from Google forms and administered personally by the researchers. The study questionnaire consisted of three sections that including the bio-data of respondents, knowledge on COVID-19 and sources of COVID-19 information. The data was analyzed using simple frequency tables and percentages, graphs and charts.

## III. RESULTS

The data obtained from the respondents were analyzed using tables with simple percentages and as well as graphs and charts for easy understanding. The questionnaire was adopted from mmm and re-design with Google forms and administered personally by the researchers to One hundred and twenty (120) junior high school students in the study area.

### Sex distribution of the respondents

From Table 2 it shows that 60% of the respondents were female while 40% of the respondents were male.

Table 2: Sex of Respondents

| Sex          | Frequency  | Percentage (%) |
|--------------|------------|----------------|
| Male         | 48         | 40.00          |
| Female       | 72         | 60.00          |
| <b>Total</b> | <b>120</b> | <b>100.00</b>  |

Source: Online field survey, 2020.

### Age distribution of the respondents

The table 3 shows that 45.83% of the respondents were in the 16 years and above age category and 20.83% of respondents were also between 12-13 years age category, while 17.50% of the respondents were within 10-11 years age category and the remaining 15.83% of the respondents were between the age categories 14-15 years.

Table 3: Age of Respondents

| Age Category | Frequency  | Percentage (%) |
|--------------|------------|----------------|
| 10-11        | 21         | 17.50          |
| 12-13        | 25         | 20.83          |
| 14-15        | 19         | 15.83          |
| 16+          | 55         | 45.83          |
| <b>Total</b> | <b>120</b> | <b>100.00</b>  |

Source: Online field survey, 2020.

**Class distribution of the respondents**

Table 4 from the study shows that 40.80% of the respondents were in junior high school form 1 while respondents in Junior High School form 2 consisted of 36.70% and 22.50% the remaining respondents were in the Junior High School final year class. The form three as finals year Junior High School had fewer percentage respondents because few of them had reported for preparation towards the Basic Education Certificate Examination (BECE) at the time of the study data collection.

Table 4: Class of Respondents

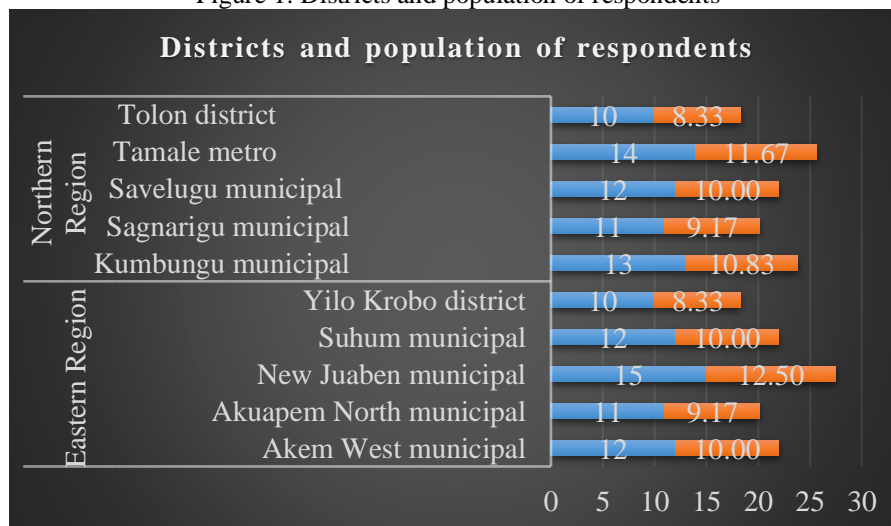
| Form                 | Frequency  | Percentage (%) |
|----------------------|------------|----------------|
| Junior High School 1 | 49         | 40.80          |
| Junior High School 2 | 44         | 36.70          |
| Junior High School 3 | 27         | 22.50          |
| <b>Total</b>         | <b>120</b> | <b>100.00</b>  |

Source: Online field survey, 2020.

**Districts and population of respondents**

In Figure 1, the study indicates that 12.50% of the respondents were from the New Juaben Municipality while 11.67% of the respondents were from the Tamale Metropolis and 10% each of the respondents were from Savelugu, Suhum and Akem West municipalities and 9.17% of the respondents were from Sagnarigu and Akuapem North municipalities. The remaining 8.33% each of the respondents came from the Tolon and Yilo-Krobo districts respectively.

Figure 1: Districts and population of respondents



Source: Online field survey, 2020.

**Knowledge of COVID-19**

Table 5 shows that 81.67% of the respondents said COVID-19 is passed through the droplets from infected persons mouth and nose, and when they cough or breath out and 11.67% of the respondents said COVID-19 infects people through sexual fluids including semen, vaginal fluids or through anal mucous. The 5% of the respondents also said COVID-19 is transmitted through all the responses as stated. The rest of the 1.67% of the respondents said transmission of COVID-19 is through drinking of unclean water.

Table 5: How Covid-19 is passed on

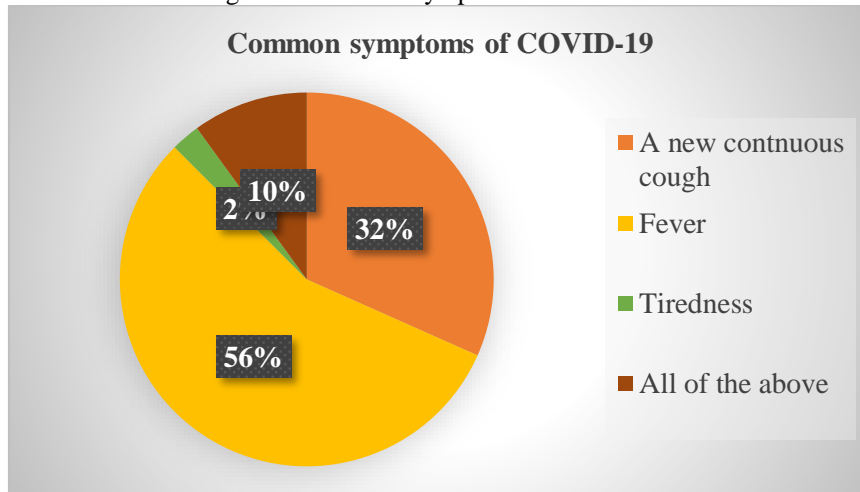
| Responses   | Frequency  | Percentage (%) |
|---|------------|----------------|
| Through droplets from infected person mouth and nose and when you cough or breath out | 98         | 81.67          |
| In sexual fluids including semen, vaginal fluids or anal mucous                       | 14         | 11.67          |
| By drinking unclean water   | 2          | 1.67           |
| All of the above  | 6          | 5.00           |
| <b>Total</b>  | <b>120</b> | <b>100.00</b>  |

Source: Online field survey, 2020.

**Common symptoms of COVID-19**

Figure 2 below shows that the majority of the students representing 56% indicated fever as the common symptom of COVID-19 and 32% of the students also said the common symptoms of COVID-19 is a continuous cough. The 10% of the students agreed to all of the above symptoms stated and the least being 2% of the students said tiredness is the common symptoms of COVID-19.

Figure 2: Common symptoms of COVID-19

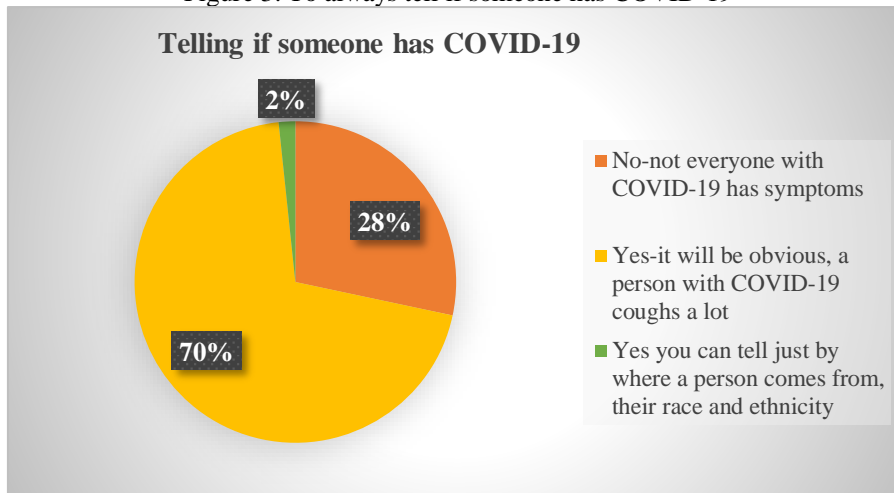


Source: Online field survey, 2020

**Telling if someone has COVID-19**

From the study, to tell if someone has COVID-19, Figure 3 shows that 70% of the respondents said yes it will be obvious a person with COVID-19 coughs a lot and 28% of the respondents said no that not everyone with COVID-19 has the symptoms whiles 2% of the respondents said yes you can tell just by where a person comes from, their race and ethnicity.

Figure 3: To always tell if someone has COVID-19

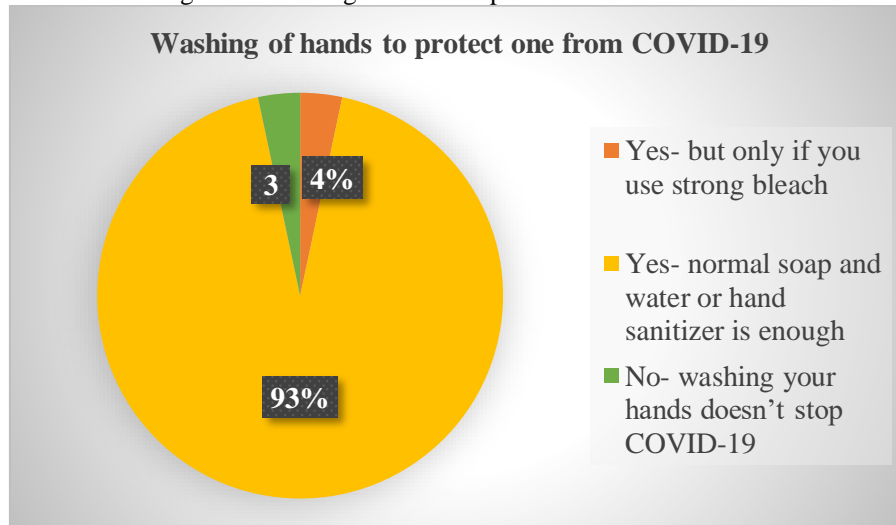


Source: Online field survey, 2020.

**Washing of hands as protection for COVID-19**

Figure 4 from the chart shows that 93% of the respondents said yes and agreed to the fact that the use of soap and water or hand sanitizer is enough for washing of hands as protection for COVID-19. The 4% of the respondents also said yes, but only if people use strong bleach, and 3% of the respondents said no that washing your hands does not stop one from COVID-19.

Figure 4: Washing of hands as protection for COVID-19

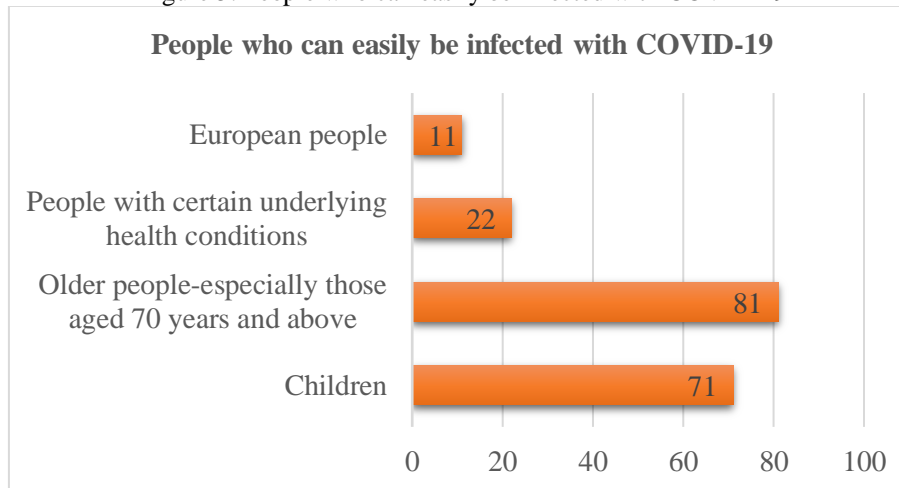


Source: Online field survey, 2020.

**People who COVID-19 is dangerous for**

The results on multiple responses from Figure 5 shows that 81% of the respondents believe COVID-19 is dangerous for older people especially those aged 70 years and above and 71% of the respondents said COVID-19 is a danger for children. The 22% of the respondents also indicated COVID-19 is a danger for people with certain underlying health conditions, while the rest of the 11% said COVID-19 is a danger for European people.

Figure 5: People who can easily be infected with COVID-19

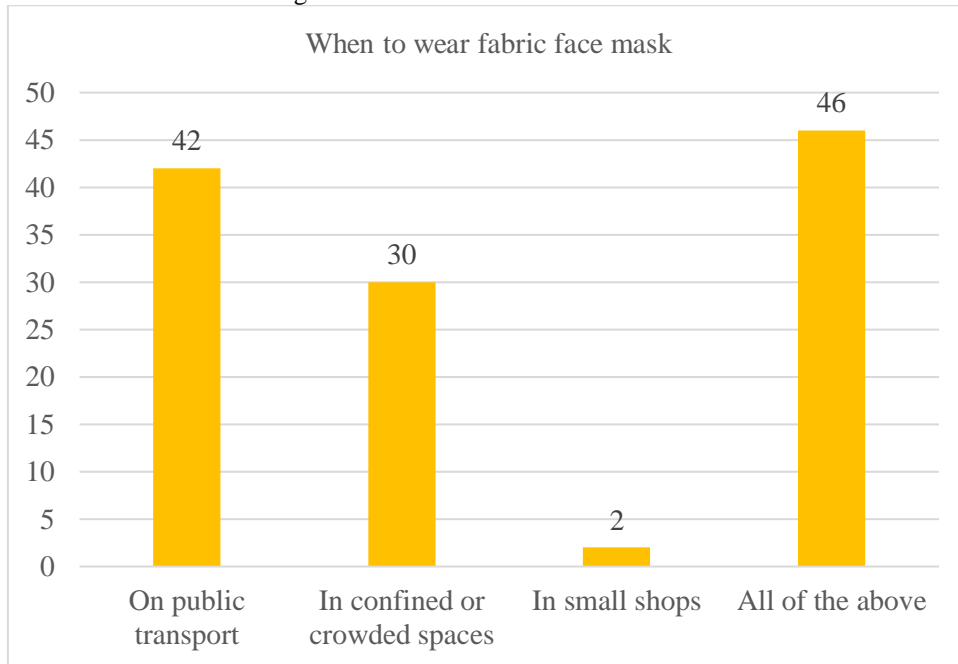


Source: Online field survey, 2020.

**Period to wear fabric face mask**

In Figure 6, the study revealed that 46% of the respondents said people should wear a fabric face mask at all places and 42% of the respondents also said, wearing of a fabric face mask should be on a means of public transport. The remaining 30% of the respondents said it should be in confined or crowded spaces, and only 2% said people should wear a fabric face mask in small shops.

Figure 6: When to wear fabric face mask

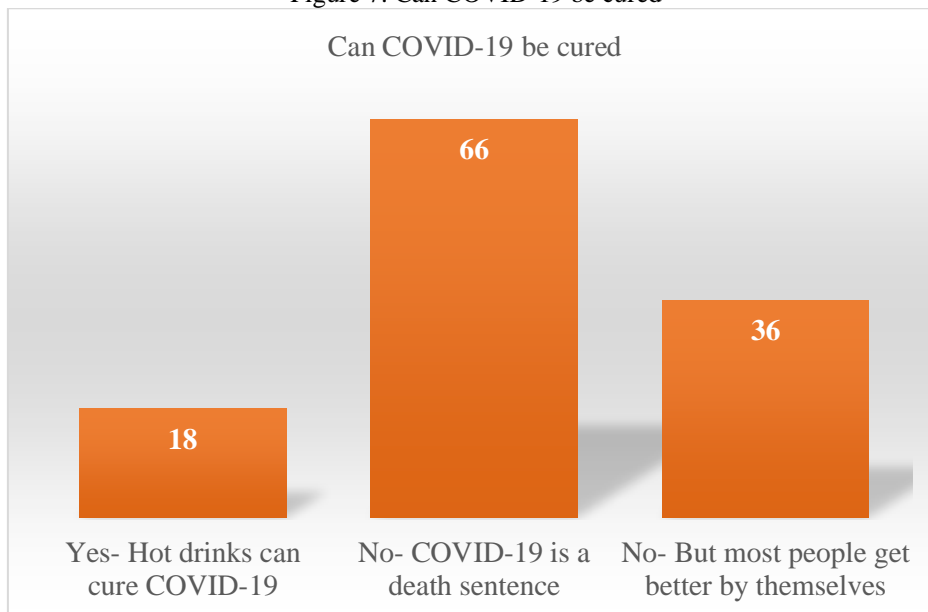


Source: Online field survey, 2020.

**If COVID-19 can be cured**

Figure 7 illustrates that 66% of the respondents said no COVID-19 is a death sentence while 36% of the respondents also said no, but most people get better by themselves and 18% of the respondents said yes, hot drinks cures COVID-19 disease.

Figure 7: Can COVID-19 be cured



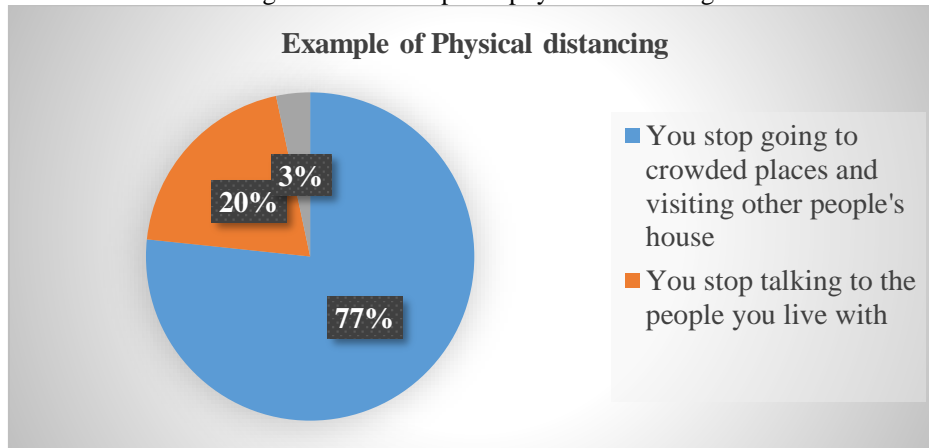
Source: Online field survey, 2020.

**Physical distancing**

Figure 8 from the study shows that 77% of the respondents said an example of physical distancing is that you stop going to a crowded space and visiting other people’s houses and 20% of the respondents said you stop talking to the people that live with you live. The respondents consisting of 3%, also stated an example of physical distancing is that you stop speaking to friends on the phone.



Figure 8: An example of physical distancing

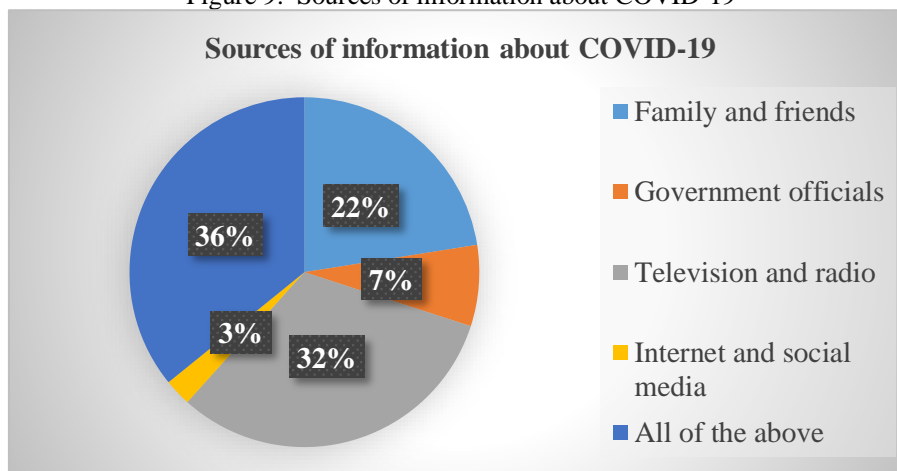


Source: Online field survey, 2020.

**Sources of information about COVID-19**

From the study, Figure 9 shows that 36% of the respondents indicated it is from all of the stated sources they had the information about COVID-19, and 32% of the respondents said it was through television and radio they had their source of information about COVID-19. Twenty-two per cent 22% said they had information on COVID-19 from family and friends, 7% of the respondents had the information from government officials whiles 3% of the respondents had their source of information of COVID-19 through the internet and social media.

Figure 9: Sources of information about COVID-19



Source: Online field survey, 2020.

**IV. DISCUSSION**

The study revealed the majority of the students had thorough knowledge that COVID-19 is transmitted via the droplets from a person infected with COVID-19 mouth and nose, and when they cough or breathe out. However, the rest were of the view that COVID-19 is passed on through sexual fluids (semen, vaginal and anal mucous) and drinking of unclean water. Research has not shown COVID-19 can be passed on through sexual fluids or unclean water. This implies that there is still the need for more awareness creation to impart knowledge on the mode of transmission of covid19 in all basic schools across the study regions and country as a whole.

From the study, the majority of the students indicated fever was the common symptom of COVID-19 and this was followed by the students who said the common symptoms of

COVID-19 is a continuous cough while rest of the students agreed its all of the above symptoms with the rest saying tiredness is rather the common symptoms of COVID-19. All of the aforementioned symptoms are common symptoms of COVID-19. The reason being that the disease is most noticeable by new and continuous cough while some people still experience other symptoms too consisting of tiredness, fever and flu-like symptoms including headache, runny nose and sore throat.

It was found out from the study that most of the students were of the view that you could tell if someone had COVID-19 because it's obvious a person with covid19 coughs a lot of. However, 28 per cent of the students rightly said no since one could not tell if someone has COVID-19 because it is not everyone that has COVID-19 shows the symptoms. The coronavirus can last in a person's body for closer up to 14 days before and those with mild cases of

covid-19 might not even experience anything wrong. The remaining were of the view that you can tell if someone has covid19 based on where the persons come from, their race and ethnicity. In reality, COVID-19 affects people with different colour, race and ethnicity throughout the world and someone coughing a lot does not mean the person has COVID-19 because there are series of other similar diseases that has cough as one of its symptoms.

From the results of the study, it was found that majority of the students agreed to the fact the use of normal soap and water or hand sanitizer was enough for washing of one hand to protect one from covid19. Regular handwashing is seen as the best way of avoiding being infected or transmission of covid-19. Other students believed the use of strong bleach could prevent the transmission of covid19 and the rest said no to the fact that washing one's hand does not stop one from COVID-19 infection.

To find out from multiple response questions regarding the people who COVID-19 is more dangerous for, the majority of the students were of the view that COVID-19 is more dangerous for older people above 70 years could easily be infected with COVID-19 and this was followed by those who agreed covid-19 is dangerous for children. COVID-19 is assumed not to be very serious in children. However, few of the students had it right that COVID-19 is more dangerous especially for people with certain underlying health conditions including diabetes, heart diseases and others while the rest thought covid19 is only dangerous for European people. Studies revealed most children are immune to the coronavirus and it is a myth that covid-19 is only dangerous for European people because the disease is a global pandemic that easily attacks all category of people living on the earth.

The study further found that most students had a firm knowledge and awareness on the wearing of fabric face mask at all place they find themselves including on public transport, in confined or crowded spaces and in smaller shops. However, others agreed fabric face mask should be worn in only confined or crowded spaces with the few saying it should be worn when in small shops. As per COVID-19 protocols, a fabric face mask is appropriate to be worn in all places that people find themselves in order to safeguard and protect oneself from infection.

To find out if COVID-19 could be cured, most students had a misconception that covid-19 is a death sentence to people. However, very few of the students had the belief that most people infected with COVID-19 easily get better by themselves with the least saying taking in hot drinks can cure COVID-19. The researchers are of the view that it is a fallacy for the students to say COVID-19 is a death sentence because though people easily die especially the aged and those with certain underlying illness but the majority of the infected people do survive and taking in hot liquids does not help in curing COVID-19. There is a need for more awareness creation on COVID-19 at the basic school and community levels to demystify these perceived myths.

It was revealed by the study from the majority of the students that, an example of physical distancing is for a person to stop going to a crowded place and visiting other people's houses. The rest of the students were of the view that you stop talking to friends on phone and that of speaking to the people you live with as examples of physical distancing. Physical distancing has to according to WHO (2020) helps in limiting the spread of COVID-19. People are supposed to keep at least 1m distance from each other in order to avoid spending much time in a crowded place or in groups. Thus, speaking with friends on phone is not a form of physical distance and talking to the people you live with a 1m distance is seen as a form of physical distance to help avoid the transmission of COVID-19.

Majority of the students were aware and had thorough knowledge regarding the sources of acquiring the information on COVID-19. Most of the students firmly agreed that they had their COVID-19 information from all the sources including Television, radio, Internet, family and friends, the government and social media. The rest of the students said it was through only television and radio they had the information on COVID-19 while others said it was from family and friends with the rest saying they had the source of information through government officials, the internet and social media. This clearly indicates that in Ghana and the study area, all the sources of passing COVID-19 information was utilized to help in creating awareness and impart of knowledge on COVID-19.

## V. CONCLUSION

The study concludes that the students were aware of COVID-19 and had adequate knowledge of COVID-19, its causes, mode of transmission and prevention mechanisms. Generally, the student's access to the varied sources of information on COVID-19 played a major role in their acquisition of knowledge on COVID-19 and its awareness. However, despite having some knowledge about COVID-19, some of the students still have certain misconceptions about transmission and treatment of COVID-19. The limitation in the study has to do with the sample population which had respondent with a sizeable sample size which does not reflect the general student population of junior high school students from the study area of the two regions.

## RECOMMENDATIONS

The researchers based on the results of the study recommends that more education and awareness creation at the basic school and community levels demystify these myths and enhance the knowledge of COVID-19. The Ghana Education Service should liaise with the various School Health Education Program Coordinators to ensure that COVID-19 activities are imbedded into their programs so as to impart more knowledge about the disease. Government official, health authorities, non-governmental organizations, families and friends and the media also needs to continue to contribute their quota in the fight against and dissemination of information by intensifying their efforts in raising the awareness of people and knowledge towards



COVID-19 to the general society at large. The study further recommends in future similar research be conducted on a larger population size of students in junior high school in the country.

### Implications for public health

The students having adequate knowledge and awareness on COVID-19 will help change their health behaviours in order to reduce the health risk, spread and the containment of COVID-19. This will go a long way to achieve the goal of public health in improving quality of life through the prevention and treatment of diseases among the population.

### Abbreviations

GHS: Ghana Health Service; CDC: Centre for Disease Control; COVID-19: Coronavirus disease 2019; SARS: Severe Acute Respiratory Syndrome; WHO: World Health Organization.

### Declarations

#### Ethical approval informed consent to participate

Written consent was designed for the respondents to either accept or reject to participate in the study after the researchers read the purpose of the study to them. Respondents were made to understand that the study was for solely for research purposes and their information regarding the study was going to be treated in strict confidence. Permission was also sorted from the school authorities prior to the study.

### Competing interest

We know of no conflicts of interest associated with this publication.

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