# Mitigating Measures and Corona Virus Disease-19 in Bunia Town the Ituri Province Democratic Republic of Congo

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## *Abstract*

*According to World Health Organization, Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. The virus COVID-19 is transmitted through droplets generated when an infected person coughs, sneezes, or exhales. The droplets are too heavy to hang in the air and quickly fall on floors or surfaces. A person gets infected by touching a contaminated surface and then his eyes, nose, or mouth (WHO,2020). COVID-19 affects different people in different ways. Most infected people develop mild to moderate illness and recover without hospitalization. The most common symptoms are fever, dry cough, tiredness. The fewer common symptoms are aches and pains, sore throat, diarrhea, conjunctivitis, headache and loss of taste or smell, a rash on the skin, or discoloration of fingers or toes. Most people who fall sick with COVID-19 will experience mild to moderate symptoms and recover without special treatment. 80% will recover from the disease without needing special treatment (WHO,2020). Around one in every five people who are infected with COVID-19 develop difficulty in breathing and require hospital care. People aged over 60 years and people who have underlying medical conditions such as diabetes, heart disease, respiratory disease, or hypertension are among those who are at greater risk. (WHO,2020).*

*Keywords: Coronavirus disease (COVID-19), Mitigating, Measures.*

## Introduction

The World Health Organisation, 2020 [1] report published in a situation report no 176 as of 14 July 2020 detailed a total of 12 964 809 confirmed cases, including 570 288 deaths (CFR 4.4%). In one more situation report no 194 of World Health Organisation, 2020 [2], as of 1st August 2020, it's stated both the global number of confirmed COVID-19 cases and deaths have continued to increase significantly. And during the reporting period, 10 countries with the highest number of cumulative cases were: United States of America (3 286 063), Brazil (1 864 681), India (906 752), the Russian Federation (739 947), Peru (326 326), Chile (317 657), Mexico (299 750), South Africa (298 292), the United Kingdom (290 137) and Iran (Islamic Republic of) (259 652)., there have been 13,119,239 confirmed cases of COVID-19, including 573,752 deaths in the world: 6,884,151 confirmed in Americas, 2,946,104 confirmed in Europe, 1,317,078 confirmed in Eastern Mediterranean, 1,231,014 confirmed in South-East Asia, 492,660 confirmed cases in Africa, 247, 491 confirmed in Western Pacific [1, 2].

Globally, the World Health Organization [2] posits statistics published on 18th May 2021 and revealed 163,312,429 confirmed cases of COVID-19, including 3,386,825 deaths. The total of 1,407,945,776 vaccine doses has been administered. Furthermore, for Africa, World Health Organization African region [3] has published in his external situation report 31 as of 30th September 2020, two latest data of John

Hopkins University and Africa Centre for Disease Control on COVID-19, Africa CDC, [3], it's declared over 590,000 confirmed cases of Coronavirus are across the continent, with several African countries imposing a range of prevention and containment measures against the spread of the pandemic [3, 4].

Therefore, in DRCongo, several studies were conducted on the pandemic by many researchers.

First, A study conducted by [5] stated the first case of Coronavirus (COVID-19) in the Democratic Republic of Congo on March 10, 2020.

Second, the Uganda Daily Monitor [6] newspaper as of 22nd March 2020 reported the DRC Health minister to announce the fourth case of coronavirus in Kinshasa.

The third, on 24th March 2020, the France 24 newspaper published on a state of health emergency declared by President Félix Tshisekedi. The confinement of the commune of Gombe was decided for two weeks from April 6th, 2020 [7]. Subsequently, two researchers [8, 9] concentrated their efforts on the pandemic as the virus has so far remained in the wealthy city centre of the capital.

The first case was identified in the province of North Kivu. Carly Nzanzu Kasivita, the governor of the province, has denied the assertion and indicates the case of COVID-19 discovered in the province is of Ituri while it has been confirmed by health authorities. The Congolese Virologic Jean-Jacques Muyembe was appointed by President Félix Tshisekedi. to coordinate and manage the pandemic in Kinshasa.

A Study [10], depicted this contradictory situation in his research published in the Journal Le Monde as chaotic Corona virus management system in DRCongo.

According to [11], meanwhile, two cases were recorded at Bukavu in South Kivu and in Beni (North Kivu), a hot spot in the Ebola epidemic on 5th April 2020, the United Nations [12] broad cast the decision of the authorities in North Kivu to isolate Goma, Beni, as well the city of Butembo from the rest of the province of North Kivu for two weeks [12].

In [13] study, the first case was registered in Kwilu, and Idiofa became the fifth province to be affected by the virus in the Democratic Republic of Congo in one week [13]. During the same period, [13] find fake news on COVID-19 in Kinshasa to circulate widely among the population and Congolese people to thinking the virus to not exist or to affect only white skins".

Meantime, in one more study done by [14], she revealed Congolese to believe in consuming the "Songo Bololo" type of cassava commonly consumed in the area to immunize against the Coronavirus, which the World Health Organization (WHO) advises against any self-medication with the plant indicating no evidence of consuming can prevent or cure the disease.

Likewise, in Ituri Province, information's on COVID-19 were perceived and debated differently by the local population in Bunia Town.

According to different reports of the World Health organisation [15, 16, 17, 18, 19], the COVID-19 pandemic has become the second burden to the DRCongo government after the Ebola disease and the ongoing violence and insecurity in eastern parts of the country, which has triggered mitigating measures harder for locals to access public health facilities.

Inure province shares a border with North Kivu and is concerned about the rapid increase in positive cases from neighbouring province and have experienced in the past days of Ebola disease. Many areas and sites hosting displaced people are overcrowded, becoming difficult to implement physical and keep social distancing. Movements of people between the two provinces are no longer filtered, which causes a serious threat to control COVID-19.

To contain the disease, the Iouri Provincial Minister of Health was instructed to reinforce measures and recognize several uncontrolled

tracks. Nonetheless, as of May 17th, 2021, according to the Democratic Republic of Congo Ministry of Health report, published on 2nd May 2021 by APO Group in French, the cumulative number of cases is 30,620, including 30,619 confirmed cases and 1 probable case.

The accumulations of deaths and cures remain respectively unchanging at 776 and 26,603 cases.[20]. Regarding vaccination, the operation of which began on April 19, 255 new people were vaccinated in the DRC. To date, the total number of people vaccinated with AstraZeneca is 9,693. According to the same source, no case of additional death has been recorded throughout the national territory [21].

## Purpose of Study

The purpose of the study is to assess the knowledge, attitudes, and practices of Bunia inhabitants related to the threat of Corona Virus Disease (COVID-19) in Inure Province, Democratic Republic of Congo.

## Research Questions

In this study, we would like to answer the following question:

1. What are possible measures that would prevent the Corona Virus -19 from spreading in Bunia Town on characteristics that influence strong willingness and involvement and appropriation of the community to control the pandemic in the province?
2. Do communities adhere easily mitigation measures on the level of acceptance?

## Research Hypothesis

Therefore, we formulate our research hypotheses as follows:

The characteristics related to the appropriation of mitigating measures would depend on the attitude, knowledge, and practice of local communities and socio-economic and political dynamics level of acceptance of COVID-19 disease and mitigations measure is low would have contributed to the spread of disease in Bunia Town.

## Interest/ Aim of the Study

The present work will help health authorities and different partners dealing with COVID-19 for self-evaluation, health policy planning, and decision making.

## Rationale /Justification of the Study

To do a study and have a better understanding of mitigation measures established by provincial health authorities.

## Materials and Methods

### Study Area

Bunia Town, Iouri Province was considered for the study area.

### Study Population

The study population is of respondents based in Bunia town for a sample size of 400 respondents.

### Study Duration

The study duration (1 month) is from 15th April to 14th July 2021.

### Research Design

Research design is the plan for connecting the conceptual research problems pertinent and achievable empirical research. It is an inquiry that provides specific direction for procedures in research [22]. The philosophy behind this study is a mixture of phenomenological and a bit of ethnography and use interviews, observations, documents review, and extended time spent in the field to ensure that data is to validate results and cushion the effects of threats to validity. Ethnography research was considered and has helped identify and analyses unexpected issues such as attitudes and emotions etc.

### Type of Study

This study is of the descriptive and transversal type. It allows us to identify and evaluate mitigation measures on the Coronavirus in Bunia Town. It is transversal

because carried out within a defined period, from April to July 2021.

## Sampling Type

We used systematic type probability sampling because all respondents have an equal chance of being subjected to the survey and systematic because all units of the target population have a nonzero probability to take part in the study and all participants and were equally selected in the study, and the odds of selection expressed by the formula: P=1/N, where P equals the probability of taking part in the study and N corresponds to the size of the target population.

## Determination Sample Size

Kothari formula (2004) to determine the sample size of this study for making a total of 400 by using occasional random sampling respondents were occasionally selected in 14 quarters of Bunia municipality making a sample size of 400.

Kothari Formula for sample size:

$$ss = \frac{Z2^*\,(p)^*\,(1-p)}{c-2}$$

Where:

- Z = Z value (e.g., 1.96 for 95% confidence level).
- p = Percentage picking a choice expressed as decimal (.5 used for sample size needed).
- c = confidence interval, expressed as decimal (e.g., .05 = 5%).

Study tools, various schedules, checklists, etc., to be used. For the present study, an interview made of open-ended questions were addressed to letting the respondents give their inputs or description on a specific issue. To have quality data, researchers were trained and pretested before collecting data.

## Data Collection Methods

To collect the data from the respondents, we used the closed-type survey questionnaire because respondents did not have the power to answer questions that proposed the modalities to them to choose answers of their own choice. Each interview session took about 45 minutes to 1 hour per respondent.

## Data Analysis

Data collected were analysed using Excel software, percentage numbers to analyse data. Inclusion criteria. We considered the population of the study respondents living in Bunia town, a governmental and non-governmental actor able to share their experiences or observations and willing to contribute to the study.

## Exclusion Criteria

Exclusion criteria were excluded from the study respondents, did not fulfill the selection criteria and did not leave in 12 quarters composing Bunia town.

## Limitations

During the study, we faced challenges in gaining access to updated data from provincial records and Health zone on health policies and interactions with other non-state actors.

## Ethical Considerations

Before any attempt to collect data, approval was obtained from local authorities, respondents were informed on the purpose of the study, their right to refuse or participate, their anonymity, and confidentiality considered.

## Results

In Table 1, the findings show in Bunia Town. 95.8% respect the mitigation measures as reduced number of individuals in collective spaces followed by regular hand washing and body temperature measurement of 90,0%.

During the reopening of public buildings such as schools, supermarkets, markets, churches, and mosques, only 42,8% respect measures such a cleaning/disinfection of premises.

**Table 1.** Major mitigating measures established in Bunia Town

| Variables | Major mitigation measures established in Bunia Town | | |
|---|---|---|---|
| | **Effective** | **Percentage** | **Cumulative Percentage** |
| Cleaning/disinfection of premises prior to the reopening of public buildings such as schools, supermarkets and markets, churches, mosques etc. | 171 | 42.8 | 42.8 |
| Regular hand washing, Body temperature measurement. | 170 | 42.5 | 85.3 |
| Physical distancing and mandatory face masks and respect of barrier measures. | 19 | 4.8 | 90.0 |
| Restricting the numbers of individuals in collective spaces. | 23 | 5.8 | 95.8 |
| Specific measures for the workplace. | 17 | 4.3 | 100.0 |
| Total | 400 | 100 | |
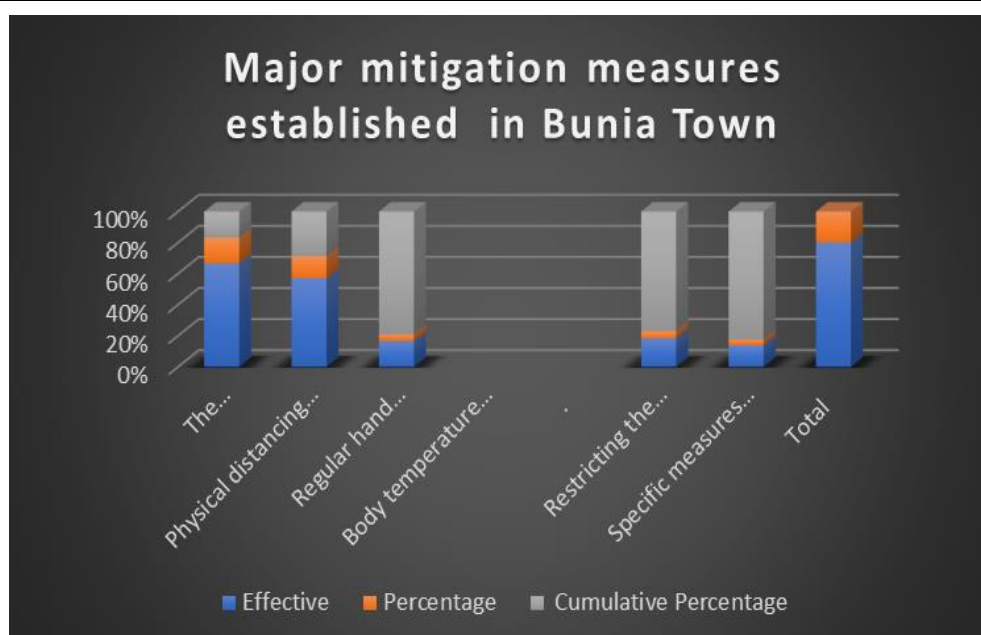


**Figure 1.** Mitigation Measures

In Table 2, the result shows only 13 % have respected the practice of not touching eyes, nose, and mouth. 27 % of respondents have declared to wear masks in public places. 46.8% have observed and practised handwashing for more than 10 seconds in Bunia Town. In table 2, the result shows only 13 % have respected the practice of not touching eyes, nose, and mouth. 27 % of respondents have declared mandatory wearing masks in public places, 46.8% have observed and practised handwashing for more than 10 seconds in Bunia Town.

**Table 2.** Mitigation Measures observed in Public Places

| Variables | Mitigation measures observed in public places | | |
|---|---|---|---|
| | **Effective** | **Percentage** | **Cumulative Percentage** |
| Practice of not touching eyes, nose, and mouth | 52 | 13.0 | 13.0 |
| Mandatory mask wearing in public places, and avoid traveling to infected areas | 56 | 14.0 | 27.0 |
| Hands Wash often (more than 10 seconds) | 79 | 19.8 | 46.8 |
| Avoid kissing, hand shaking, coughing, or sneezing into the elbow, use disposable tissues | 213 | 53.3 | 100.0 |
| Total | 400 | 100.0 | - |

The findings of Table 3 show 17 % of respondents have perceived Corona Virus Disease-19 to be reliable and reality compared to 93.3 % to believe the disease to be somehow. 69.5 % of respondents have denied the disease.

**Table 3.** Perception of locals related to Corona Virus Disease-19 pandemic

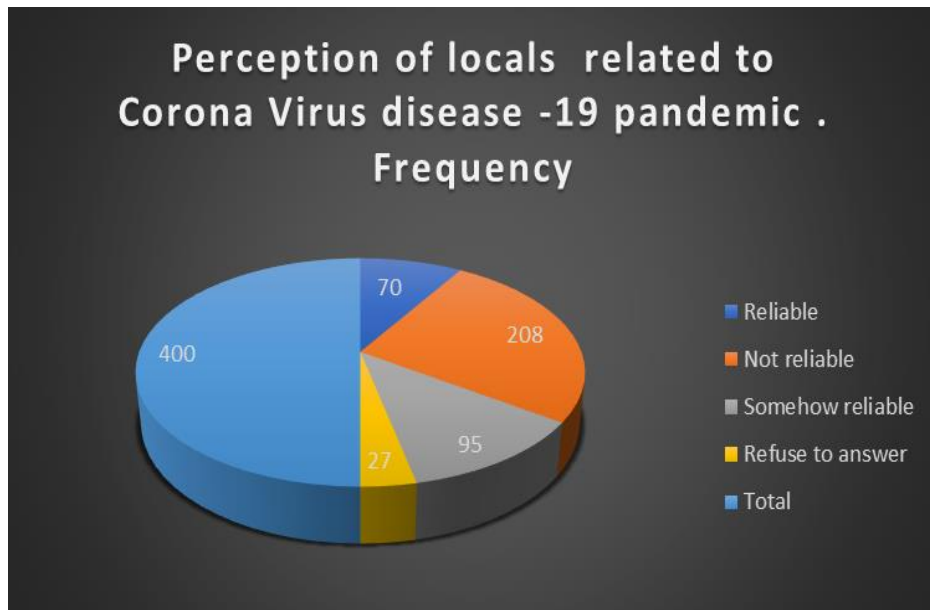| Variables | Mitigation measures observed in public places | | |
|---|---|---|---|
| | **Effective** | **Percentage** | **Cumulative Percentage** |
| Reliable | 70 | 17.5 | 17.5 |
| Not reliable | 208 | 52.0 | 69.5 |
| Somehow reliable | 95 | 23.8 | 93.3 |
| Refuse to answer | 27 | 6.8 | 100.0 |
| **Total** | 400 | 100.0 | - |



**Figure 2.** Locals Perceptions on COVID-19

The findings of Table 4 show 32 % of respondents have acknowledged signs and symptoms of Corona Virus Disease-19 fever, headache, vomiting, and sore throat. And 35.5% to better knowledge signs and symptoms such as coughing, sneezing to be signs of the disease. 20.0% acknowledge the dizziness major's signs and symptoms,14.5 % do not know any signs of the disease.

**Table 4.** Community Knowledge on Sign and symptoms for Corona Virus Disease-19 Control

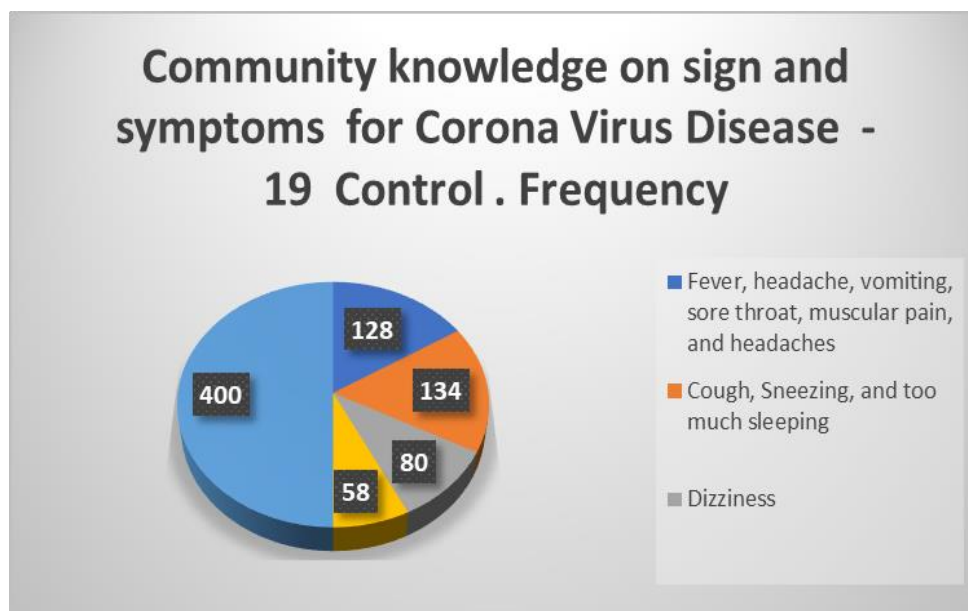| Variables | Mitigation measures observed in public places | | |
|---|---|---|---|
| | Effective | Percentage | Cumulative Percentage |
| Fever, headache, vomiting, sore throat, muscular pain, and headaches | 128 | 32.0 | 32.0 |
| Cough, Sneezing, and too much sleeping | 134 | 33.5 | 65.5 |
| Dizziness | 80 | 20.0 | 85.5 |
| Don't know | 58 | 14.5 | 100.0 |
| Total | 400 | 100.0 | - |



**Figure 3.** Community Knowledge on Sign and Symptoms

The findings of Table 5 show 19.8% of respondents know the incubation period of the Corona Virus as of 14 days. And 79% to consider 28 days as the incubation period of Coronavirus. And 45.8 % consider 28 days as for the period of contamination.

**Table 5.** Community Knowledge on Incubation Period for COVID-19 Control

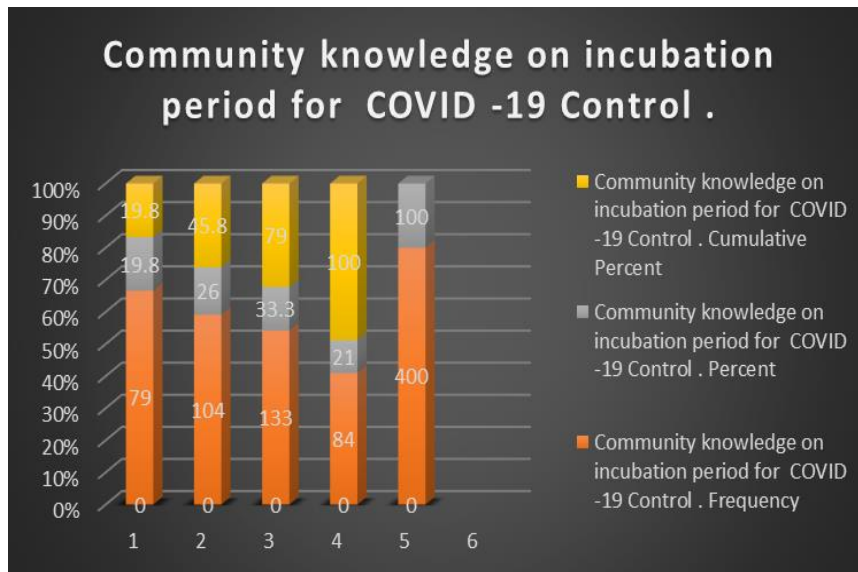| Variables | Mitigation measures observed in public places | | |
|---|---|---|---|
| | Effective | Percentage | Cumulative Percentage |
| 14 days | 79 | 19.8 | 19.8 |
| 21 days | 104 | 26.0 | 45.8 |
| 28 days | 133 | 33.3 | 79.0 |
| 32 days | 84 | 21.0 | 100.0 |
| Total | 400 | 100.0 | - |

**Figure 4.** Community Knowledge on Incubation Period

In Table 6, 72.5 % of respondents consider the transmission of Corona Virus through unprotected sex with multiple partners, 59% consider handshaking, and 39% for direct contact with infected persons to be the model in the community.

**Table 6.** Bunia Town Community Knowledge on Mode of Transmission on COVID-19

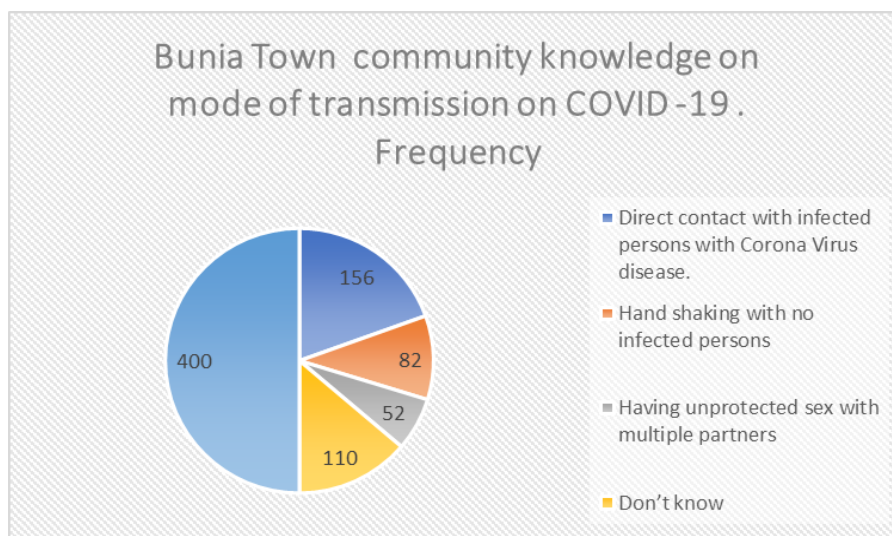| Variables | Mitigation measures observed in public places | | |
|---|---|---|---|
| | Effective | Percentage | Cumulative Percentage |
| Direct contact with infected persons with Corona Virus disease. | 156 | 39.0 | 39.0 |
| Hand shaking with no infected persons | 82 | 20.5 | 59.5 |
| Having unprotected sex with multiple partners | 52 | 13.0 | 72.5 |
| Don't know | 110 | 27.5 | 100.0 |
| Total | 400 | 100.0 | |



**Figure 5.** Community Knowledge on Mode of Transmission on COVID-19

## The Summary of Findings and Discussion

In Table 1, the findings show 95.8% mitigating measures to be respected for the only restriction of the number of individuals in collective spaces followed by regular hand washing and body temperature measurement 90.0%. However, cleaning/disinfection of premises before the reopening of public buildings such as schools, supermarkets, markets, churches, mosques, etc. respected by 42.8% during the period of the Health State emergency.

In Table 2, results indicate that only 13 % have respected and practiced not touching eyes, nose, and mouth. 27% of respondents have declared have mandatory wear masks in public places while only 46.8% observed practice handwashing for more than 10 seconds in Bunia Town. The percentage of 95,8 % reached due to a state of health emergency declared by the Head of State on March 24th, and locals are afraid to be punished or fined by security actors.

In the findings of Table 3, 17 % of respondents perceived Corona Virus Disease-19 to be reliable and reality compared to 93.3 % who believe the disease exists or not. And 69.5 % of respondents have denied and not to be reliable. The reason mitigation measures were not respected effectively in Bunia Town and Ituri province.

During the period, all denominations were churches and combined; bars and public places frequented by more than 20, without respecting the barrier measures against COVID-19. As per consequences, new cases arose in Bunia Town from 2 confirmed cases to 85 in the time frame of 4 weeks after the reopening of activities on August 15th, 2020. To avoid health planning are proposed ways. It involves setting goals, developing strategies, and outlining tasks and schedules to accomplish the goals. Planning is deciding in advance what to do, how to do it, and who is to do it. It bridges the gap between where we are, where we want to go. It makes possible things to occur that would not otherwise happen. It has the following elements: -identification of goal and vision, undertaking strategic planning and evaluation.

Findings in Table 4, 39 % of respondents know signs and symptoms of Corona Virus Disease-19 as fever, headache, vomiting, and sore throat. 20.5% have a better understanding of signs and symptoms of coughing, sneezing, headaches assign. Only 13% of respondents acknowledge dizziness as a sign and symptom, and 27.5% do not know any signs of the disease. The virus can cause a variety of symptoms, from fluctuating from mild illness to pneumonia. Symptoms of the disease are fever, cough, sore throat, and headaches.

The findings in Table 5 show only 19.8% of respondents know the incubation period of Coronavirus of 14 days.

In Table 6, 72.5 % of respondents consider the transmission of Corona Virus to be through unprotected sex with multiple partners.59% handshaking and 39% for direct contact with infected persons to be the transmission mode in the community.

According to several studies, there is no evidence that the COVID-19 virus transmitted through semen or vaginal fluids virus detected in the semen of people who have or are recovering from the virus. Further research is needed to determine the COVID-19 virus to be transmitted sexually. COVID-19 is not a sexually transmitted infection; however, through kissing and physical touching with an affected person. Coronaviruses are transmitted from person to person after close contact with an infected patient in a household or workplace, health care center, public places, etc.

## Conclusion

To conclude, findings on how Corona disease will contribute to helping provincial health authorities to make decisions regarding health policies during the pandemic and make

contingency planning as per the findings shown in tables only 27 % and new cases increasing.

We assign as objectives to get perceptions on mitigating measures in Bunia Town. The purpose of the study is to assess the knowledge, attitudes, and practices of Bunia inhabitants related to the threat of CORONA VIRUS DISEASE (COVID-19) in Ituri Province, The Democratic Republic of Congo.

## Research Questions

In this study, we would like to answer the following question:

1. Are there possible measures that would prevent the Corona Virus -19 from spreading in Bunia Town? There might be factors to influence the strong willingness and appropriation of the community to control the pandemic in the province?

Do communities adhere easily mitigation measure and their level of acceptance.

## Research Hypothesis

Therefore, we formulate our research hypotheses as follows:

The characteristics related to the appropriation of mitigating measures would depend on the attitude, knowledge and practice of local communities and socio-economic and political dynamics level of acceptance of COVID-19 disease and mitigations measure is low would have contributed to the spread of disease in Bunia Town.

## Interest/Aim of the Study

The present work will help health authorities and different partners dealing with COVID-19 for self-evaluation, health policy planning, and decision making.

The study has carried for three months based on quantitative data collection where the number of populations concentrated in Bunia Town due to insecurity prevailing in the outskirts. Respondents were occasionally randomly selected from 12 quarters.

Data chose through interviews with over 400 beneficiaries in 12 quarters composing Bunia Town. The findings show the restriction of the number of individuals in collective spaces 95,8% have a high rate followed by regular hand washing and body temperature measurement of 90.0%.

As of respondents in table 1, 32% know signs and symptoms of CoronaVirus Disease-19 as of fever, headache, vomiting sore throat. 65.5% better understanding of signs and symptoms as of coughing, sneezing, headaches as majors' signs the incubation period of Corona Virus 19 is knowledgeable by 19.8% of respondents in table 5, and 72.5 % for the transmission of Coronavirus-19.

The hypothesis formulated is confirmed considering findings in tables 1, 2, 5, mitigating measures have improved in public places.

## Conflict of Interest

Following Texila International Journal policy and my ethical obligation as a researcher, I am reporting that there is no financial or business interests or writing assistance, or administrative support from a person or organization that might benefit or be at a disadvantage for publishing the findings. There are no personal, political, religious, ideological, academic, and intellectual competing interests that are perceived relevant publishing the content that may be affected by the research.

## Acknowledgement

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