

INTRODUCTION

The SARS-CoV-2 virus causes Coronavirus Disease (COVID-19), an infectious disease. The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) developed the coronavirus disease 19 (COVID-19), a highly transmissible and pathogenic virus that caused a global pandemic and a considerable loss of human life. According to a genetic analysis, bats could be the primary reservoir. SARS-CoV-2 is phylogenetically related to bat viruses that cause severe acute respiratory syndrome (SARS). Despite the fact that the source of genesis and transmission to humans is unknown, the rapid human-to-human transmission has been demonstrated. COVID-19 has not yet been treated with a clinically approved antiviral drug or vaccine. However, only a few broad-spectrum antiviral medicines have been tested in clinical trials against COVID-19, with clinical recovery. The majority of those infected with the virus will have mild to moderate respiratory symptoms and will recover without the need for medical attention. Some, on the other hand, will become critically unwell and require medical assistance. Serious sickness is more likely to strike the elderly and those with underlying medical disorders such as cardiovascular disease, diabetes, chronic respiratory disease, or cancer. COVID-19 can make anyone sick and cause them to get very ill or die at any age.

Wuhan, China's emerging commercial hub, recently saw an outbreak of a novel coronavirus that killed over eighteen hundred people and infected over seventy thousand in the first fifty days of the pandemic. This virus was identified as belonging to the coronavirus family. The Chinese researchers termed the new virus 2019 novel

coronavirus (2019-nCov). The virus was called SARS-CoV-2 by the International Committee on Virus Taxonomy (ICTV), and the disease was named COVID-19 by the International Committee on Virus Taxonomy (ICTV). SARS-CoV (2003) infected 8098 people in 26 countries, with a 9% mortality rate; nevertheless, as of this writing, new coronavirus (2019) has infected 120,000 people in 109 countries, with a 2.9 percent mortality rate. It shows that SARS-CoV-2 had a higher transmission rate than SARS-CoV, which could be attributed to a genetic recombination event at the S protein in SARS-RBD CoV-2's region, which boosted transmission ability. In this review article, the transmission of human coronaviruses is briefly discussed. SARS and MERS are also discussed in terms of infectiousness and biochemical features, with a focus on COVID-19.

The emergence and pathogenicity of COVID-19 infection, as well as earlier human coronaviruses such as severe acute respiratory syndrome coronavirus (SARS-CoV) and middle east respiratory syndrome coronavirus, are summarized and compared in this paper (MERS-CoV).

Problem Statement

The Coronavirus has become one of the major cases of disease in the most populated country in the world. Covid-19 disease is the latest virus that the world is facing. More and more people are suffering from different kinds of illnesses, after the covid-19 virus emerged. It was first detected in Wuhan, China which became a global pandemic. After a few years of facing the coronavirus, scientists have successfully developed the vaccine and they have distributed it for the general public. People are still worried about how to prevent the virus and its variants that are still surfacing. The government faces a serious issue on how they are going to detect people who are infected with the virus if the general population is stubborn with compliance with the guidelines and regulations regarding the virus.. It is clear that coronavirus issues are very difficult to manage even if the government has successfully created a vaccine. Some places in our country have a lack of technology and devices, which is a major issue for the government. Quite a few people who have the virus are still getting inside our country without being tracked by the government which continues the spread of the Covid-19 virus.

Government and officials should be more careful in labeling cases that have positive signs and symptoms relating to the virus but are negative when tested in order to prevent misunderstanding of reports and data regarding the coronavirus.

A Covid Exploration Tracking Synergy will help the government and people to track and trace the latest numbers of people who are positive in the virus. This idea will

likely lead to better updates and reports to prevent errors and miscounts and to also determine how to lessen the upcoming number of cases of the virus.

SIGNIFICANCE OF THE STUDY

This data analysis research will provide fresh light on the country's updates and analysis of the consequences of this CoronaVirus. This research will specifically benefit the following:

- Government - This research will let them take immediate action, before the public becomes aware of the pandemic or the coronavirus, by analyzing every single case of the pandemic or the coronavirus. The planning process and ideas from established frameworks in the Philippines will help them figure out how to organize, create, and develop the community in a week while maintaining their healthy practices.
- Community - This study informs the public about potential solutions and strategies for ensuring their safety and awareness throughout their lives.
- Students - Students will benefit immediately from this study since the findings may inspire them to look into data analytics as a means to help their community establish effective Covid tracking and response plans for the lifelong coronavirus. They will also be told about their preparations or how to make themselves and their loved ones aware of the situation.
- Parents - This study may motivate parents to pursue programs that incorporate teaching to help students cope with Covid's negative effects.

- Future Researchers -This paper discusses the tracking that encompasses and response frameworks to minimize the enlarging number of cases by the virus. Thus, the findings of this study may be utilized to inform future conversations and analysis of effective frameworks employed by governments throughout the world that the Philippine government could adopt for its own system.

Scope and Limitations

The study will include confirmed COVID-19 cases from the Philippines' 37 collaborating institutions. Every country has its unique healthcare system, which is influenced by its degree of development and strategies. As a result, the findings of this study cannot be accurately applied to other situations. Patients under the age of 18 will also be excluded from this trial. Because the characteristics and outcomes of these younger patients may differ from those of adults, the results of this study's adult estimations may not be applicable to this population subset. Furthermore, data from patients with COVID-19 will be collected from patient records, including data from patients with mild symptoms who did not go to the hospital and those who had spontaneous symptom remission despite actual infection with COVID-19.

Objectives

The Philippines has been severely affected by the Covid-19 virus. According to the World Health Organization (WHO), as of January 3, 2020 until today, the Philippines has had a total number of 3,689,656 confirmed cases of COVID-19 with 60,455 deaths. Due to the virus, several communities experienced a heavy impact economically, such as loss of jobs and businesses.

Vaccine hesitancy is a problem in the Philippines. According to the World Bank's Survey, the level of hesitancy in the Philippines is higher than other countries that participated. The survey was conducted in multiple countries at various time periods. It suggests that the amount of respondents who were willing to get the vaccine was significantly lower in the Philippines than other countries. Knowing this, the researchers aim to evaluate and analyze data sets regarding the growth of Covid-19 in order to come up with a potential covid exploration tracking synergy. Specifically the researchers' aim is to:

- 1) Acquire data of covid-19 from different countries and visualize it with their corresponding dates, regions, confirmed cases and deaths, and people who have recovered from the virus.
- 2) Determine the universal growth of covid-19 over time.
- 3) Analyze the trends of the top 15 affected countries and determine their mortality rate.
- 4) Determine the growth of covid-19 in the Philippines.

- 5) Gather the data of covid19 vaccination from different countries and determine the total number for the top 10 countries.
- 6) Determine the total vaccination and daily vaccination of covid19 in the Philippines.
- 7) Determine the top 10 countries with the highest number of vaccinated people per 100 of the population and the total vaccines delivered by them.

The main objective of the analysis of the data is to provide information on the different factors that affected other countries and the Philippines with covid-19, in order to track the latest number of cases, analyze their response frameworks, and to come up with different strategies to prevent the spread of the virus and improve the vaccination system of the Philippines.

Data analysis and Coding

The analysis for this project was conducted through python programming and its modules. The analysis will be based on the specific objectives of this paper and it will be displayed using data visualization techniques .

Expected Outputs

This inquiry will provide an exploratory look into Covid instances from 2020 to 2021 that resulted in the highest number of deaths in the country, as well as information on adjacent legislatures with the most affected families. The datasets or information from

the Department of Health (DOH) will be utilized to develop a Covid tracking and a possible outcome, which could aid the Philippines in combating the disease and improvement of the vaccination system. Filipinos' possibilities of getting by and recuperating from Coronavirus will unquestionably improve, assuming the methodology suggested by accomplice associations like the World Health Organization (WHO) are taken.

Sustainable Development Goals of the Project

The sustainable development goals of this project aims to attain good health and well-being for all. This includes the ending of communicable diseases, providing universal health care, and access to safe and effective medicines and vaccines. The sustainable development goals are aligned with the project as it will provide analysis on the data regarding the growth of covid-19 in other countries and the Philippines, in order for the Philippine government to have an efficient response plan to monitor and lessen the spread of the coronavirus.

Evaluation of the X variable in the data sets:

covid_19_data

X Variable	Definition
Observation	It represents the date of the data in covid19
Country/Region	The country and the region, a particular area or part of a state, country, or the earth's surface. This shows the country where the data is gathered from.
Province	A province is an administrative division within a country or state. This shows the specific province where the data is gathered.
Last Update	This displays when the data was last updated, it includes the date and time.
Confirmed	This shows the number of confirmed cases of covid-19.
Death	This shows the number of deaths of people by covid-19
Recovered	This shows how many people have recovered from covid-19

time_series_covid_19_confirmed and time_series_covid_19_deaths

X Variable	Definition
Province/State	A province is an administrative division within a country or state.
Country/Region	The country and the region, a particular area or part of a state, country, or the earth's surface. This is where the data is

	gathered from.
Lat	the angular distance of a place north or south of the earth's equator, or of a celestial object north or south of the celestial equator, usually expressed in degrees and minutes.
Long	Longitude is the measurement east or west of the prime meridian.

**time_series_covid_19_confirmedUS and
time_series_covid_19_deathsUS**

X Variable	Definition
Province/State	A province is an administrative division within a country or state.
Country/Region	The country and the region, a particular area or part of a state, country, or the earth's surface. This is where the data is gathered from.
Lat	the angular distance of a place north or south of the earth's equator, or of a celestial object north or south of the celestial equator, usually expressed in degrees and minutes.
Long	Longitude is the measurement east or west of the prime meridian.
UID	A unique identifier is a numeric or alphanumeric string that is associated with a single entity within a given system.
Iso2	It represents the ISO 3166-1 alpha-2 codes are two-letter country codes defined in ISO 3166-1, part of the ISO 3166 standard published by the International Organization for Standardization, to

	represent countries, dependent territories, and special areas of geographical interest.
Iso3	It represents the ISO 3166-1 alpha-3 codes are three-letter country codes defined in ISO 3166-1, part of the ISO 3166 standard published by the International Organization for Standardization, to represent countries, dependent territories, and special areas of geographical interest.
code3	It represents the ISO 3166-1 numeric codes are three-digit country codes defined in ISO 3166-1, part of the ISO 3166 standard published by the International Organization for Standardization (ISO), to represent countries, dependent territories, and special areas of geographical interest.
FIPS	It represents the Federal Information Processing Standard Publication 6-4 is a five-digit Federal Information Processing Standards code which uniquely identified counties and county equivalents in the United States
Admin2	It represents the county which is a political and administrative division of a state, providing certain local governmental services.
Combined_key	It is a key that represents the combined county, province, and country.

country_vaccinations

X Variable	Definition
Country/Region	The country and the region, a particular area or part of a state, country, or the earth's surface. This is where the data is gathered from.
iso_code	The ISO country codes are internationally recognized codes that designate every country and most of the dependent areas a two-letter combination or a three-letter combination
date	a particular month, day, and year of the covid vaccination.
total_vaccinations	Total number of people vaccinated
total_vaccinations_per_hundred	Total number of people vaccinated per one hundred people.
vaccines	It represents the name or brand of vaccine used in the vaccination.

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