

## STATISTICAL VIEW ON 2019 CORONAVIRUS EPIDEMIC ACROSS THE WORLD

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**ABSTRACT:** This study used a total of 161 countries which were stratified into six regions comprising Africa, Asia, Europe, North America, South America, and Australia/Oceania. We critically described the statistical view on the COVID-19 coronavirus epidemic across the world by giving the facts and figures on the number of deaths, percentage of deaths to COVID-19, infected cases, percentage infected to population and the recovered cases in the world as at Saturday, 21 March 2020. Algeria has the highest number of deaths while Mauritius has the highest percentage of death and Egypt has the highest number of infected individuals as well as the highest number of recovered cases. In Asia, China has the highest number of deaths and individuals infected while Iran has the highest percentage of death and percentage of individuals infected with COVID-19. The maximum recovered cases were 71,857 representing the recovered cases in China in Asia. Italy has the highest number of deaths and the number of infected individuals across Europe to COVID-19 while San Marino has the highest percentage of death and percentage of the population infected with COVID-19. The highest recovered cases were 4,440 in Italy. In North America, the United States has 275 deaths as the highest number of deaths to COVID-19 and also has the highest percentage deaths to population, the highest number of infected individuals across North America and also has the percentage of the population infected with COVID-19 to be 0.006%. The highest recovered cases were 147 in the United. Brazil with 15 deaths has the highest number of deaths while Guyana has the highest percentage of death to COVID-19 in South America. The country with the highest number of infected individuals across South America was Brazil while Uruguay has the percentage of the population infected with COVID-19 to be 0.003%. Chile has four recovered cases which were the highest cases recorded at that time in South America. The country with the highest number of infected individuals across Australia/Oceania region was Australia while it also had the highest percentage of the population infected with COVID-19. The recovered cases were only recorded as two in Australia.

**KEYWORDS:** COVID-19; Epidemic; Deaths; Percentage; Recovered cases

### 1. INTRODUCTION

The outbreak of coronavirus took the whole world by surprise in December 2019. This was the

unprecedented epidemic outbreak in recorded history and one of the major new infectious diseases of this century, unusual in its high morbidity and mortality rates and in strategically taking advantage of modern international travel to propagate itself around the world. Global havoc has been created by this disease, bringing the healthcare system of affected areas to a grinding halt, affecting healthcare providers, disrupting scheduled emergency surgeries and vital treatment to patients with serious conditions, overloading hospitals with infected cases, forcing public events to be cancelled, and schools and borders to be closed. The economic impact on individuals and businesses was profound, downregulating tourism, education, and employment [6]. This novel coronavirus has been identified as the cause of a cluster of pneumonia cases in Wuhan, a city in the Hubei Province of China. In February 2020, the World Health Organization (WHO) designated the disease COVID-19, which stands for coronavirus disease in 2019 as COVID-19. The first coronavirus, avian infectious bronchitis virus, was said to have been isolated from chicken eggs in 1937 [7]. The human coronaviruses were identified in the 1960s while other animal coronaviruses including porcine hemagglutinating encephalomyelitis virus (1962), feline coronavirus (1970), canine coronavirus (1971), bovine coronavirus (1973), turkey coronavirus (1973), porcine epidemic diarrhea virus (1978), and porcine respiratory coronavirus (1984) were also discovered. To study coronaviruses, various systems of reverse genetics have been established since 1992 for understanding viral replication, elucidating virus-host interaction and pathogenesis, and developing novel coronavirus vaccines. Because a high-throughput next-generation sequencing technology was unveiled in 2005, its application in virology has advanced a new era of coronavirus discovery. Several emerging animal coronaviruses, such as porcine deltacoronaviruses, therefore, have been identified and characterized. This disease, without doubt, has its origin from animals as there is a synergy between humans, animals, and the environment as implied by one health strategy. It has also been described as a

beta coronavirus, which has an envelope and round or oval particles with a diameter of 60-140nm, and is often polymorphic and the genetic characteristics of the 2019-nCoV are significantly different from SARS-CoV and MERS-CoV (2). The Nigeria Centre for Disease Control (NCDC, 2020) also affirmed that coronaviruses are zoonotic indicating they are transmitted between animals and people and that some coronaviruses are transmitted from person to person, usually after close contact with an infected patient. This work provides additional evidence for a median incubation period for COVID-19 of approximately 5 days, similar to SARS. Assuming infection occurs at the initiation of monitoring, our estimates suggest that 101 out of every 10 000 cases will develop symptoms after 14 days of active monitoring or quarantine. The whole world and laboratories are working to come up with drugs for the treatment of this novel disease. Gautret et al. (2020) showed in their study that hydroxychloroquine treatment is significantly associated with viral load reduction/disappearance in COVID-19 patients and its effect is reinforced by azithromycin. This paper critically described the statistical view on the COVID-19 coronavirus epidemic across the world by giving the facts and figures on the number of deaths, percentage of deaths to COVID-19, infected cases, percentage infected to population and the recovered cases in the world as at Saturday, 21 March 2020. We were not able to estimate the case fatality rate (CFR), that is, the proportion of cases who eventually die from coronavirus disease since the coronavirus epidemic is still ongoing to avoid the misleading result.

## 2. MATERIAL AND METHODS

### Sampling procedures

The list of all the countries in the world was created and used as a sampling frame after which all the countries in the list were stratified into six regions like Africa, Asia, Europe, North America, South America, and Australia/Oceania. The samples were taken from the list to fill each of the strata. This list contained 165 countries of the world but four were excluded as there was no data for them and this left us with 161 countries.

### Data collection procedures

The data used in this study were extracted from the website created by the Center for Systems Science and Engineering of Johns Hopkins University (<https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>). These data comprised facts and figures on the number of deaths, infected cases and the recovered cases in the world as of Saturday, 21 March 2020.

### Data management and statistical analysis

The data were extracted into Excel Spread Sheet, coded and fed into SPSS version 23 statistical software. These data were classified region by region and descriptive analyses were carried out to estimate the number of deaths, percentage of deaths to COVID-19, infected cases, percentage infected to population and the recovered cases in the world as of Saturday, 21 March 2020.

## 3. RESULTS AND DISCUSSION

A total of 161 countries were used in this study comprising Africa (40), Asia (39), Europe (44), North America (21), South America (13) and Australia/Oceania (4). These analyses were presented in Table 1 through Table 6.

The data for the total population for each country in Africa for 2020 were extracted from the world wide web upon which the percentage of deaths was calculated. The results presented in Table 1 showed the number of individuals infected with COVID-19, several deaths as well as the percentages of deaths and recovered individuals to the total population. The maximum number of deaths is 11 with the total number of deaths being 30. Algeria has the highest number of deaths, followed by Egypt with eight deaths and Morocco with three deaths. Other countries have either one or no death at the time of extraction of these data on coronavirus. No records of deaths were found for the remaining countries as it appeared in the results presented in Table 1. According to these results, Mauritius has the highest percentage of death (0.00008%) and Algeria is next while others, as presented, have 0.00001%. The maximum number of infected individuals across Africa was 285 which represented individuals infected with COVID-19 in Egypt. South Africa had 202 infected individuals, followed by Algeria (90), Morocco (86), Tunisia (54), Senegal (47), Burkina Faso (40) and Nigeria had 33 infected individuals. The percentage of the population infected with COVID-19 in descending order were Tunisia (0.00046%), implying that 46 individuals were infected per one hundred thousand of the population, Equatorial Guinea (0.00043%), 43 individuals infected per one hundred thousand of the population, South Africa (0.00034%), 34 individuals infected per one hundred thousand of the population, Egypt and Senegal (0.00028%), 28 individuals infected per one hundred thousand of the population, Morocco (0.00023%) and Algeria (0.00021%) implying that 23 and 21 individuals were infected per one hundred thousand of the population and others followed. As shown in the results, 86 individuals had recovered across Africa at this time while Egypt had the highest

number of recovered cases (39) and Algeria with 32 recovered cases.

Senegal and Burkina Faso recorded five recovered cases while Nigeria recorded two recovered cases.

Table 1: Total Number of Deaths, Active and Recovered Cases Recorded in Africa in the ongoing Coronavirus (COVID-19) Pandemic as at March 21, 2020

Country	Total Population	No. of Deaths	% of deaths to population	Active Cases	% of the population infected	Recovered Cases
Egypt	102334404	8	0.00001	285	0.00028	39
South Africa	59308690	0	0	202	0.00034	0
Algeria	43851044	11	0.00003	90	0.00021	32
Morocco	36910560	3	0.00001	86	0.00023	1
Tunisia	11818619	1	0.00001	54	0.00046	0
Senegal	16743927	0	0	47	0.00028	5
Burkina Faso	20903273	2	0.00001	40	0.00019	5
Cameroon	26545863	0	0	20	0.00008	0
Congo (Kinshasa)	89561403	1	0	18	0.00002	0
Rwanda	12952218	0	0	17	0.00013	0
Ghana	31072940	0	0	16	0.00005	0
Mauritius	1271768	1	0.00008	12	0.00094	0
Nigeria	206139589	1	0	33	0.00002	2
Ethiopia	114963588	0	0	9	0.00001	0
Togo	8278724	0	0	9	0.00011	1
Côte d'Ivoire	26378274	0	0	9	0.00003	1
Kenya	53771296	0	0	7	0.00001	0
Seychelles	98347	0	0	7	0.00712	0
Tanzania	59734218	0	0	6	0.00001	0
Equatorial Guinea	1402985	0	0	6	0.00043	0
Gabon	2225734	1	0.00004	4	0.00018	0
Congo (Congo-Brazzaville)	5518087	0	0	3	0.00005	0
The central African Republic	4829767	0	0	3	0.00006	0
Madagascar	27691018	0	0	3	0.00001	0
Namibia	2540905	0	0	3	0.00012	0
Liberia	5057681	0	0	2	0.00004	0
Benin	12123200	0	0	2	0.00002	0
Guinea	13132795	0	0	2	0.00002	0
Sudan	43849260	1	0	2	0	0
Zambia	18383955	0	0	2	0.00001	0
Mauritania	4649658	0	0	2	0.00004	0
Cabo Verde	555987	0	0	1	0.00018	0
Angola	32866272	0	0	1	0	0
Niger	24206644	0	0	1	0	0
Chad	16425864	0	0	1	0.00001	0
Djibouti	988000	0	0	1	0.0001	0
Eswatini	1160164	0	0	1	0.00009	0
Zimbabwe	14862924	0	0	1	0.00001	0
The Gambia	2416668	0	0	1	0.00004	0
Somalia	15893222	0	0	1	0.00001	0

Table 2: Total Number of Deaths, Active and Recovered Cases Recorded in Asia in the ongoing Coronavirus (COVID-19) Pandemic as at March 21, 2020

Country	Total Population	No. of Deaths	% of deaths to population	Active Cases	% of the population infected	Recovered Cases
China	1439323776	<b>3259</b>	0.00023*	<b>81303</b>	0.0057	71857
Iran	83992949	<b>1556</b>	<b>0.0019**</b>	<b>20610</b>	<b>0.025</b>	7635
Korea South	51269185	<b>102</b>	0.0002	<b>8799</b>	0.017	1540
Malaysia	32365999			<b>1030</b>	0.0032	
Japan	126476461	8	0.00001	963	0.00076	325
Israel	8655535	1	0.00001	705	0.0082	36
Turkey	84339067	9	0.00001	670	0.00079	0
Pakistan	220892340	3	0	501	0.00023	13
Qatar	2881053	0	0	470	0.016	0
Singapore	5850342	2	0.00003	385	0.0066	140
Indonesia	273523615	<b>38</b>	0.00001	369	0.00013	15
Saudi Arabia	34813871	0	0	344	0.00099	16
Thailand	69799978	1	0	322	0.00046	42
Bahrain	1701575	1	0.00006	298	<b>0.018</b>	125
India	1380004385	4	0	250	0.00002	23
Philippines	109581078	<b>19</b>	0.00002	230	0.00021	13
Iraq	40222493	<b>17</b>	0.00004	208	0.00052	49
Lebanon	6825445	0	0	177	0.0026	0
Kuwait	4270571	0	0	159	0.0037	27
UAE	9890402	2	0.00002	140	0.0014	31
Armenia	2963243	0	0	136	0.0046	1
Vietnam	97338579	0	0	91	0.00009	17
Jordan	10203134	0	0	85	0.00083	1
Brunei	437479	0	0	78	<b>0.018</b>	0
Cyprus	1207359	0	0	75	0.0062	0
Sri Lanka	21413249	0	0	73	0.00034	3
Cambodia	16718965	0	0	51	0.00031	1
Kazakhstan	16718965	0	0	49	0.00029	0
Oman	5106626	0	0	48	0.00094	12
Azerbaijan	10139177	1	0.00001	44	0.00043	6
Georgia	3989167	0	0	43	0.0011	0
Uzbekistan	33469203	0	0	33	0.0001	0
Afghanis-tan	38928346	0	0	24	0.00006	1
Bangladesh	164689383	2	0	20	0.00001	3
Maldives	540544	0	0	13	0.0024	0
Mongolia	3278290	0	0	6	0.00018	0
Kyrgyzstan	6524195	0	0	6	0.00009	0
Bhutan	771608	0	0	2	0.00026	0
Nepal	29136808	0	0	1	0	1

The results presented in Table 2 showed the number of individuals infected with COVID-19, the number of deaths as well as the percentages of deaths and recovered individuals to the total population in Asia. The maximum number of deaths is 3259 with the total number of deaths being 5025. China has the highest number of deaths, followed by Iran (1556), Korea South (102), Indonesia (38), the Philippines (19). Iraq (17) and others with either one, two or no death recorded as presented in Table 2. According to these results, **Iran has the highest percentage of death (0.0019%)** and **China (0.00023)** is next while Korea

South has **0.0002%**. The maximum number of infected individuals across Asia was **81,303** which represented individuals infected with COVID-19 in China. Iran had 20, 610 infected individuals, **Korea South** (8,799), Malaysia (1,030), Japan (963) and Israel (705) infected individuals. The percentage of the population infected with COVID-19 in descending order were Iran (**0.025%**), implying that 25 individuals were infected per thousand of the population, Bahrain and Brunei (0.018%), 18 individuals infected per thousand of the population, Korea South (**0.017%**), **implying that 17** individuals

were infected per thousand of the population **while China is in the tenth position in this regard** (0.0057%).

The maximum recovered cases were 71,857 (China), Iran (7,635), Korea (1540) and Japan (325).

Table 3: Total Number of Deaths, Active and Recovered Cases Recorded in Europe in the ongoing Coronavirus (COVID-19) Pandemic as at March 21, 2020

Country	Total Population	No. of Deaths	% of deaths to population	Active Cases	% of the population infected	Recovered Cases
Italy	60461826	4032	0.007	47021	0.08	4440
Spain	46754778	1375	0.003	21571	0.05	2125
Germany	83783942	73	0.00009	20142	0.024	209
France	65273511	450	0.0007	12632	0.019	12
Switzerland	8654622	58	0.0007	5544	0.064	15
United Kingdom	67886011	179	0.0003	4014	0.0059	67
Netherlands	17134872	137	0.0008	3003	0.018	2
Belgium	11589623	67	0.0006	2815	0.024	263
Austria	9006398	4	0.00004	2664	0.030	114
Norway	5421241	7	0.00013	1959	0.04	1
Sweden	10099265	20	0.0002	1639	0.02	16
Denmark	5792202	13	0.00022	1337	0.023	1
Portugal	10196709	0	0	1020	0.01	12
Czechia	10708981	0	0	833	0.008	0
Ireland	4937786	3	0.00006	683	0.014	5
Greece	10423054	10	0.0001	495	0.0048	19
Luxembourg	625978	8	0.0013	484	0.08	0
Finland	5540720	1	0.00002	450	0.008	10
Poland	37846611	5	0.00001	425	0.00112	1
Iceland	341243	1	0.0003	409	0.12	22
Slovenia	2078938	1	0.00005	341	0.016	0
Romania	19237691	0	0	308	0.0016	52
Estonia	1326535	0	0	283	0.021	1
Russia	145934462	1	0	253	0.00017	12
San Marino	33931	14	0.041	144	0.42	4
Slovakia	5459642	1	0.00002	137	0.0025	0
Serbia	8737371	0	0	135	0.002	
Croatia	4105267	0	0	130	0.0032	
Bulgaria	6948445	3	0.00004	127	0.002	3
Latvia	1886198	0	0	111	0.006	1
Bosnia and Herzegovina	3280819	0	0	89	0.003	2
Hungary	9660351	4	0.00004	85	0.0009	7
North Macedonia	2083374	0	0	76	0.004	1
Andorra	77265			75	0.097	
Albania	2877797	2	0.00007	70	0.0024	2
Belarus	9449323			69	0.00073	
Moldova	4033963	1	0.00002	66	0.0016	1
Malta	441543			64	0.014	
Lithuania	2722289	0	0	63	0.0023	1
Ukraine	43733762	3	0.00001	41	0.00009	0
Liechtenstein	38128	0	0	28	0.073	0
Montenegro	628066	0	0	14	0.00223	0
Monaco	39242	0	0	11	0.028	0
Holy See	801	0	0	1	0.13	0

According to the results presented in Table 3, **Italy** with 4,032 deaths has the highest number of deaths to COVID-19 in Europe, Spain with 1, 375 deaths, France, 450 deaths, United Kingdom, 179 deaths, Netherlands, 137 deaths and others as shown in Table 3. In terms of percentage deaths to population, **San Marino** has the highest percentage of death (0.041%) followed by Italy with 0.007%, Spain (0.003%), Luxembourg (0.0013%), Netherlands (0.0008%), France and Switzerland (0.0007%), Belgium (0.0006) and others depicted in Table 3. The country with the highest number of infected individuals across Europe was Italy (47,021), followed by Spain (21,571), Germany (20,142), France (12632), Switzerland (5544) and others came next to these five countries in

Europe. The percentage of the population infected with COVID-19 in descending order were San Marino (**0.42%**), implying that **42 individuals were infected per hundred** of the population, Holy See (0.13%), 13 individuals infected per hundred of the population, Iceland (0.12), **implying that 12 individuals were infected per hundred of the population while Italy is in the fifth position in this regard** (0.08%) and **this implied that eight individuals were infected with COVID-19 per hundred of the population**. The highest recovered cases were 4,440 (Italy), Spain (2,125), Belgium (263) and Germany (209) followed by other countries as shown in Table 3.

Table 4: Total Number of Deaths, Active and Recovered Cases Recorded in North America in the ongoing Coronavirus (COVID-19) Pandemic as at March 21, 2020

Country	Total Population	No of Deaths	% deaths to Population	Active Cases	% Infected	Recovered Cases
United States	331002651	275	0.00008	19624	0.006	147
Canada	37742154	12	0.00003	1085	0.003	9
Panama	4314767	1	0.00002	200	0.005	0
Mexico	128932753	2	0	164	0.0001	4
Costa Rica	5094118	2	0.00004	113	0.002	0
Dominican Republic	10847910	2	0.00002	72	0.0007	0
Guadeloupe	-	0	0	45		5
Martinique	-	1	-	32		0
Honduras	9904607	0	0	24	0.0002	0
Cuba	11326616	1	0.00001	21	0.0002	0
Jamaica	2961167	1	0.00003	16	0.0005	2
Guatemala	17915568	1	0.00001	12	0.00007	0
Trinidad and Tobago	1399488	0	0	9	0.00064	1
Barbados	287375	0	0	6	0.002	0
Bahamas	393244	0	0	4	0.001	0
Saint Lucia	183627	0	0	2	0.001	0
Haiti	11402528	0	0	2	0.00002	0
Nicaragua	6624554	0	0	2	0.00003	0
Saint Vincent and the Grenadines	110940	0	0	1	0.0009	0
El Salvador	6486205	0	0	1	0.00002	0
Antigua	97929	0	0	1	0.00102	0

The results presented in Table, the **United States** with 275 deaths have the highest number of deaths to COVID-19 in North America, Canada with 12 deaths, Mexico, Costa Rica and the Dominican Republic with two deaths and others with either one or no death. In terms of percentage deaths to population, **United States** has the highest percentage of death (0.00008%) followed by Costa Rica (0.00004%), Canada and Jamaica with 0.00003% and Panama and

the Dominican Republic with 0.00002% death to COVID-19. The country with the highest number of infected individuals across North America was United States (19,624), followed by Canada (1085), Panama (200), Mexico (164), Costa Rica (113) and Dominican Republic (72). Other countries followed in the North America region as provided in Table 4. The percentage of the population infected with COVID-19 in descending order were United States

(0.006%), implying that **6 individuals were infected per thousand** of the population, Panama (0.005%), 5 individuals infected per thousand of the population, Canada (0.003), **implying that 3** individuals were infected per thousand of the population **while Costa Rica and Barbados are in the fourth and fifth position with 0.002% and this implied that 2**

individuals were infected with COVID-19 per thousand of the population. The highest recovered cases were 147 (United States) followed by Canada (9), Guadeloupe (5), Mexico (4) and Jamaica (2) as shown in Table 4.

Table 5: Total Number of Deaths, Active and Recovered Cases Recorded in South America in the ongoing Coronavirus (COVID-19) Pandemic as at March 21, 2020

Country	Total Population	No of Deaths	% deaths to Population	Active Cases	% Infected	Recovered Cases
Brazil	212559417	15	0.00001	977	0.0005	2
Chile	19116201	0	0	434	0.002	4
Ecuador	17643054	7	0.00004	426	0.002	3
Peru	32971854	4	0.00001	263	0.0008	1
Argentina	45195774			158	0.0004	
Colombia	50882891	0	0	128	0.0003	1
Uruguay	3473730			94	0.003	
Venezuela	28435940			65	0.0002	
Paraguay	7132538	1	0.00001	18	0.0003	0
Bolivia	11673021	0	0	17	0.0002	
French Guiana	-	0	-	15	-	-
Guyana	786552	1	0.00013	7	0.0009	0
Suriname	586632	0	0	4	0.0007	0

The results presented in Table 5, **Brazil with 15** deaths has the highest number of deaths to COVID-19 in South America followed by Ecuador, seven deaths, Peru with four deaths and Paraguay and Guyana with one death each. In terms of percentage deaths to population, **Guyana has** the highest percentage of death (0.00013%) followed by Ecuador (0.00004%), Brazil, Peru and Paraguay (0.00001%). The country with the highest number of infected individuals across South America was Brazil (977), followed by Chile (434), Ecuador (426), Peru (263), Argentina (158) and others as provided in Table 5. The percentage of the population infected with

COVID-19 in descending order were Uruguay (0.003%), implying that **three individuals were infected per thousand** of the population, Ecuador (0.002%), two individuals infected per thousand of the population, Chile (0.002%), **implying that two** individuals were infected per thousand of the population **while Bolivia (0.00001%) has the least and this implied that only one** individual was infected with COVID-19 per one hundred thousand of the population. The recovered cases recorded as at this time were 4 (Chile) followed by Ecuador (3), Brazil (2), Peru (1) and Colombia (1).

Table 6: Total Number of Deaths, Active and Recovered Cases Recorded in Australia/Oceania in the ongoing Coronavirus (COVID-19) Pandemic as at March 21, 2020

Country	Total Population	No of Deaths	% deaths to Population	Active Cases	% infected	Recovered Cases
Fiji	896445	0	0	1	0.0001	0
Australia	25499884	0	0	791	0.003	2
New Zealand	4822233	0	0	52	0.001	0
Papua New Guinea	8947024	0	0	1	0.00001	0

According to the results presented in Table 6, no death was recorded to COVID-19 in this region at the time of collecting these data. The country with the

highest number of infected individuals across this region was Australia (791), followed by New Zealand (52), Fiji (one) and Papua New Guinea (one) and the

percentage of the population infected with COVID-19 in descending order was Australia (0.003%), implying that **three individuals were infected per thousand** of the population, New Zealand (0.001%), one individual infected per thousand of the population, Fiji (0.0001%), **implying that one individual was infected per ten thousand of the population while Papua New Guinea (0.00001%) has the least and this implied that only one individual was infected with COVID-19 per one hundred thousand of the population.** The recovered cases were only recorded as two in Australia.

## CONCLUSION

**This study has described in detail statistical perspective on** the number of deaths, percentage of deaths to COVID-19, infected cases, percentage infected to population and the recovered cases in the world as of Saturday, 21 March 2020. Algeria has the highest number of deaths while Mauritius has the highest percentage of death (0.00008%) in Africa. The maximum number of infected individuals across Africa was 285 which represented individuals infected with COVID-19 in Egypt while Tunisia (**0.00046%**), implying that 46 individuals were infected per one hundred thousand of the population. Egypt had the highest number of recovered cases (39).

The graphs of the number of deaths against the infected cases were provided in the appendix from Figure 1 through Figure 5. The view expressed in this study will shed more light on how the population of each country is being infected and affected by COVID-19 so that more drastic measures could be taken to control the spread and transmission of this dangerous disease. A follow-up study will be carried out on the current situation on the coronavirus epidemic in Africa and the whole world at large.

In Asia, China has the highest number of deaths (**3259**) while **Iran has the highest percentage of death (0.0019%)** as presented in Table 2. The maximum number of infected individuals across Asia was **81,303** which represented individuals infected with COVID-19 in China. Iran also has the highest percentage of individuals infected with COVID-19 (**0.025%**), implying that 25 individuals were infected per thousand of the population. The maximum recovered cases were 71,857 representing the recovered cases in China.

**Italy (4,032) has the highest number of deaths to COVID-19 while San Marino has the highest percentage of death (0.041%) in Europe.** The country with the highest number of infected individuals across Europe was Italy (47,021) while San Marino (**0.42%**) **has the highest percentage of the population infected**

with COVID-19, implying that **42 individuals were infected per hundred** of the population. The highest recovered cases were 4,440 in Italy.

In North America, the **United States has 275 deaths** as the highest number of deaths to COVID-19 and also has the highest percentage deaths to population (0.00008%), the **United States** has the highest percentage of death (0.00008%) followed by Costa Rica (0.00004). United States was the country with the highest number of infected individuals across North America and also has the percentage of the population infected with COVID-19 to be 0.006%, implying that **6 individuals were infected per thousand** of the population and this was the highest in that region. The highest recovered cases were 147 in the United States followed by Canada (9), Guadeloupe (5), Mexico (4) and Jamaica (2) as shown in Table 4.

**Brazil with 15 deaths** has the highest number of deaths while **Guyana has** the highest percentage of death (0.00013%) to COVID-19 in South America. The country with the highest number of infected individuals across South America was Brazil (977) while Uruguay has the percentage of the population infected with COVID-19 to be 0.003%, implying that **three individuals were infected per thousand** of the population. **Bolivia (0.00001%) has the least and this implied that only one individual was infected with COVID-19 per one hundred thousand of the population in South America.** Chile has 4 recovered cases which were the highest cases recorded at that time.

The country with the highest number of infected individuals across Australia/Oceania region was Australia (791) while it also had the highest percentage of the population infected with COVID-19 (0.003%), implying that **three individuals were infected per thousand** of the population, while **Guinea (0.00001%) has the least and this implied that only one individual was infected with COVID-19 per one hundred thousand of the population.** The recovered cases were only recorded as two in Australia. The only limitation in this study is the dynamic of the outbreak of this novel coronavirus as it is happening beyond a geometrical progression. As a result, data on this epidemic keeps on changing faster than one can imagine. The view expressed in this study will shed more light on how the population of each country is being infected and affected by COVID-19 so that more drastic measures could be taken to control the spread and transmission of this dangerous disease.



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APPENDIX

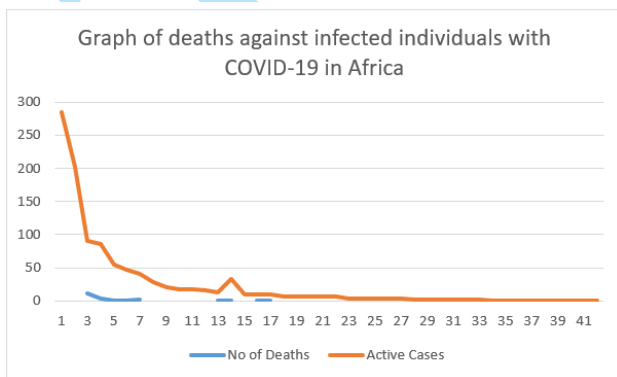


Figure 1: Representation of deaths against infected cases in Africa

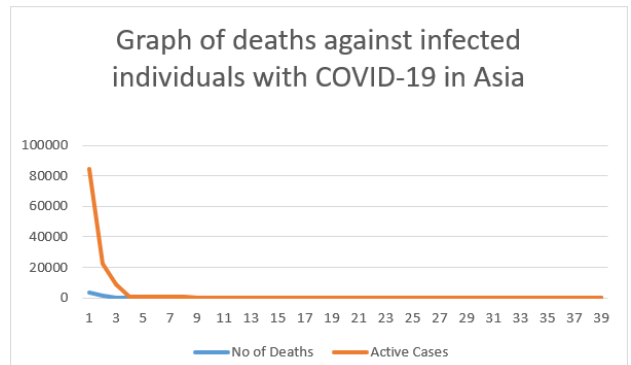


Figure 2: Representation of deaths against infected cases in Asia

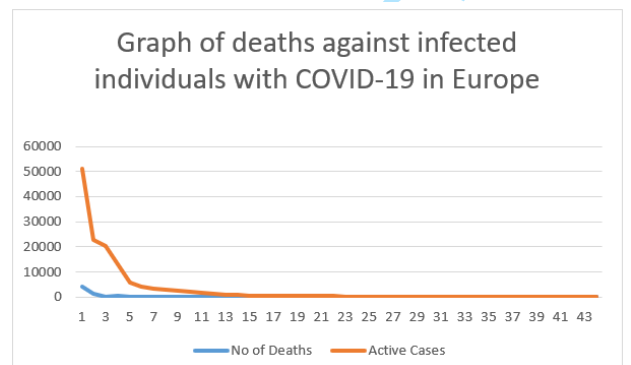


Figure 3: Representation of deaths against infected cases in Europe

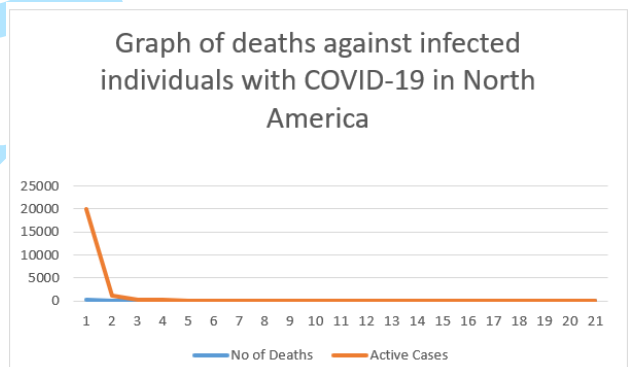


Figure 4: Representation of deaths against infected cases in North America

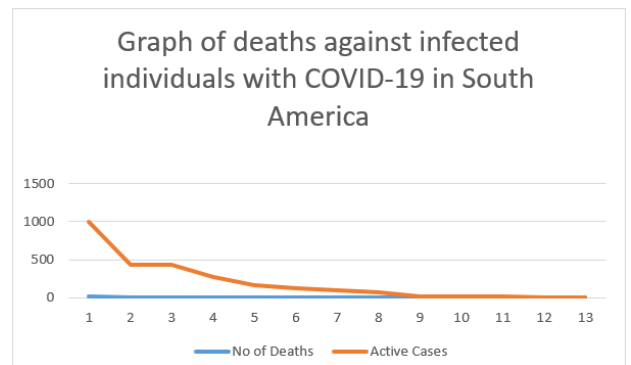


Figure 5: Representation of deaths against infected cases in South America