

Cumulative evaluation of demography and distribution of COVID-19 around the globe: An update report of COVID-19 until 17th February 2022

Joseph Oyepata Simeon ^{1,*}, Joseph Opeyemi Tosin ², Sabastine Aliyu Zubairu ³

¹ Department of Pharmacology and Toxicology, Faculty of Pharmaceutical Sciences, Federal University, Oye–Ekiti, Ekiti State, Nigeria.

² Department of pharmacology, Faculty of pharmacy, Lead City University, Ibadan, Nigeria.

³ Department of Pharmacology and Therapeutics, Faculty of Pharmacy, Gombe State University, Gombe State, Nigeria.

*. **Corresponding author:** Joseph Oyepata Simeon, Department of Pharmacology and Toxicology, Faculty of Pharmaceutical Sciences, Federal University, Oye–Ekiti, Ekiti State, Nigeria. E-mail: simeon4unme@yahoo.com.

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Abstract

Background and Objective: COVID-19 has had a worldwide impact in a variety of ways since its discovery in China. As a result, it's critical to maintain a constant eye on the virus's impact around the world. The goal of this research is to compile a global assessment of COVID-19 demographics and distribution, as well as a COVID-19 update report till February 17th, 2022.

Methods: Data was provided by the United Nations Geocheme database from 151 nations and areas throughout the world. The results were compiled and compared to the figures obtained for the United States.

Result: When compared to the United States, the American continent has a lower incidence but the same fatality rate. When compared to the United States, most European and Asian countries have the same cumulative incidence and mortality rates as the United States, except for a few countries such as the United Kingdom and the Netherlands. When compared to the United States, the African continent has an extremely low incidence and fatality rate.

Conclusion: The development of the Omicron variety seems to make COVID-19's approach and comprehension more complicated. As a result, the virus has had a long-term impact all over the world. Africa, on the other hand, is not particularly afflicted by all the virus's strains. As a result, the rest of the world must research the cause of this "African exception" and maybe comprehend its ramifications in terms of potential immunity.

Keywords: Africa, Asia, Continent, COVID-19, Europe, USA

Introduction

Coronaviruses are a type of virus that can infect humans and cause respiratory disease (1,2). Because of the crown-like spikes on the virus's surface, they're nicknamed "corona" (3). Coronaviruses that cause sickness in humans include SARS, Middle East respiratory syndrome (MERS), and the common cold

(4,5,6). COVID-19, a novel coronavirus strain, was initially discovered in Wuhan, China, in December 2019. (7). The virus has spread to all continents, since then. Bats, cats, and camels are all known to carry coronaviruses (8,9). The viruses survive, but the animals are not infected. Viruses can sometimes spread to other animal species. When viruses are

passed from one species to another, they may change (mutate). The virus can eventually migrate between animal species and infect people (11). In the case of COVID-19, the virus is likely to have been contracted at a food market in Wuhan, China, where meat, fish, and live animals were sold (12). Although researchers aren't sure how people became infected, they do know that the virus may be transmitted straight from person to person through intimate contact. South Africa first reported the Omicron form (B.1.1.529) of SARS-CoV-2 (the virus that causes COVID-19) to the World Health Organization (WHO) on November 24, 2021. (13). In the bronchi (lung airways), Omicron grows 70 times faster than the Delta variation, however data suggests it is less severe than prior strains, especially when compared to the Delta form. Omicron may have a harder time penetrating deep lung tissue (14).

There is substantial concern, as well as research into the various waves of the sickness. This has been attributed to a shift in weather and a viral strain that has been discovered as being constantly altered (11, 12, 14). There is a need to investigate these cases in terms of virulence and spreadability of the altered strain by country and location. In addition, some intriguing research on the demographics, nature, and strength of the virus have been conducted, but interpreting the updated information over time is also dependent on monitoring the trend (16,17). The goal of this research was to compile a global assessment of COVID-19 demographics and distribution, as well as a COVID-19 update report till February 17, 2022.

Methodology

Study Area: Up until February 17th, 2022, the United Nations Geochemie and WHO (WHO 2021) released cumulative data. A total of 151 countries from various continents and regions of the world were chosen for this research. The data used is from the United Nations Geochemistry and WHO (16) up till February 17th, 2022. The data for these countries was analyzed and directly compared to the results obtained for the United States during a period of 7 days per 100,000 people. Because it is a country with one of the greatest health systems and the largest COVID-19 instances with a relatively big population, it was employed as a comparative factor (CF) or Oyepata factor (OF). Because it has one of the greatest healthcare systems and one of the highest documented COVID-19 cases, the United States was utilized as a comparative factor (CF).

The research depends on official statistics, which may or may not be totally accurate because some regions or nations may under or over report incidences of viral infection.

Statistical analysis

Markers including cumulative cases and cumulative cases of death per 1,000,000 people were compared to values in the United States in this study. The chi-square test was used to compare proportions of all variables using bivariate analysis. Country observations are scaled in this study to give a comparison of two countries that are otherwise identical. Thus, lower rate ratios imply that lower levels of a particular trait are linked to lower rates of infection or mortality, and vice versa.

Results

When compared to the United States, the American continent has a lower incidence but the same fatality rate. When compared to the United States, most European and Asian countries have the same cumulative incidence and mortality rates as the United States, apart from a few countries such as the United Kingdom and the Netherlands. When compared to the United States, the African continent has an extremely low incidence and fatality rate (Table 1).

Discussion

When compared to the United States, the American continent has a lower incidence but the same fatality rate. Apart from a few nations like the United Kingdom and the Netherlands, most European countries have the same cumulative incidence and fatality rates as the United States. When compared to the United States, the continent has an extremely low incidence and fatality rate.

Based on past studies, this trend has been continuing for quite some time (18,19,20). The cause for the exceptionally high value of the US dollar has yet to be fully understood. Poor policy execution, politics, and division among diverse interest groups are all possible culprits, as are genetic and environmental factors. Viruses, particularly coronaviruses and influenza viruses, are known to change. These alterations result in new viral variants (21). Occasionally, the varieties are less contagious, less severe, or manifest with somewhat different symptoms (22). Unfortunately, the COVID-19 delta form and Omicron are more highly contagious and more likely to cause serious sickness, however research into this is currently ongoing (23, 24). Vaccines are still the greatest way to keep the virus at bay, especially if a third dose of an mRNA vaccine is administered (25). According to preliminary data, double immunization provides a significant level of protection against infection and roughly 70% protection against hospitalization (26). The virus's efficiency has increased by more than 75% thanks to a recent third vaccine injection (27).

Table 1. Worldwide cases and deaths of COVID-19

S/N	Country	Total cases	Total Deaths	Total cases/1M POP (A)	Total death/1M POP (B)	A/238852 CF1/OF1 ©	B/2851 CF2/OF2 (D)
1	USA	79,814,014	952,711	238852	2851	1.00	1.00
2	India	42,754,315	510,441	30494	364	0.13	0.13
3	Brazil	27,812,210	640,868	129350	2981	0.54	1.05
4	France	22,068,635	136,142	336883	2078	1.41	0.73
5	UK	18,499,058	160,221	270195	2340	1.13	0.82
6	Russia	14,840,502	343,173	101622	2350	0.43	0.82
7	Turkey	13,266,265	91,646	154594	1068	0.65	0.37
8	Germany	13,065,825	121,341	155140	1441	0.65	0.51
9	Italy	12,323,398	152,282	204309	2525	0.86	0.89
10	Spain	10,778,607	97,710	230390	2089	0.96	0.73
11	Argentina	8,783,208	124,765	191482	2720	0.80	0.95
12	Iran	6,894,110	134,420	80408	1568	0.34	0.55
13	Colombia	6,031,130	137,586	116512	2658	0.49	0.93
14	Netherlands	5,963,238	21,449	346771	1247	1.45	0.44
15	Poland	5,495,615	109,205	145467	2891	0.61	1.01
16	Mexico	5,344,840	314,128	40759	2395	0.17	0.84
17	Indonesia	5,030,002	145,828	18079	524	0.08	0.18
18	Ukraine	4,637,260	103,824	107080	2397	0.45	0.84
19	Japan	4,146,197	20,954	32946	167	0.14	0.06
20	South Africa	3,648,968	97,520	60290	1611	0.25	0.57
21	Philippines	3,646,793	55,330	32575	494	0.14	0.17
22	Israel	3,508,222	9,768	376176	1047	1.57	0.37
23	Belgium	3,473,015	29,832	297561	2556	1.25	0.90
24	Czechia	3,468,364	38,050	322901	3542	1.35	1.24
25	Peru	3,466,309	208,789	102803	6192	0.43	2.17
26	Canada	3,218,731	35,791	84084	935	0.35	0.33
27	Portugal	3,148,387	20,708	310235	2041	1.30	0.72
28	Malaysia	3,138,215	32,239	94983	976	0.40	0.34
29	Australia	2,967,316	4,797	114213	185	0.48	0.06
30	Chile	2,747,552	40,936	141752	2112	0.59	0.74
31	Thailand	2,656,411	22,541	37903	322	0.16	0.11
32	Vietnam	2,643,024	39,278	26762	398	0.11	0.14
33	Switzerland	2,636,886	13,117	301101	1498	1.26	0.53
34	Romania	2,629,090	62,188	138162	3268	0.58	1.15

Table 1. Continued

35	Sweden	2,418,560	16,733	237076	1640	0.99	0.58
36	Austria	2,393,576	14,503	263322	1596	1.10	0.56
37	Denmark	2,367,611	4,207	406432	722	1.70	0.25
38	Iraq	2,286,451	24,824	54847	595	0.23	0.21
39	Greece	2,255,421	25,095	218120	2427	0.91	0.85
40	Bangladesh	1,926,570	28,907	11512	173	0.05	0.06
41	Serbia	1,867,836	14,666	215184	1690	0.90	0.59
42	Hungary	1,738,944	42,966	180754	4466	0.76	1.57
43	S. Korea	1,645,978	7,238	32060	141	0.13	0.05
44	Jordan	1,541,379	13,608	148671	1313	0.62	0.46
45	Georgia	1,511,800	15,729	380162	3955	1.59	1.39
46	Pakistan	1,494,293	29,917	6558	131	0.03	0.05
47	Slovakia	1,306,967	18,179	239199	3327	1.00	1.17
48	Kazakhstan	1,295,250	13,494	67667	705	0.28	0.25
49	Ireland	1,260,329	6,402	250692	1273	1.05	0.45
50	Morocco	1,157,637	15,855	30771	421	0.13	0.15
51	Norway	1,086,614	1,548	197921	282	0.83	0.10
52	Cuba	1,063,481	8,482	93985	750	0.39	0.26
53	Bulgaria	1,054,566	34,779	153650	5067	0.64	1.78
54	Croatia	1,032,033	14,679	253938	3612	1.06	1.27
55	Lebanon	1,029,998	9,890	152012	1460	0.64	0.51
56	Nepal	974,857	11,911	32508	397	0.14	0.14
57	Tunisia	971,460	27,233	80823	2266	0.34	0.79
58	Bolivia	887,089	21,342	74347	1789	0.31	0.63
59	UAE	872,210	2,290	86490	227	0.36	0.08
60	Slovenia	868,142	6,152	417496	2959	1.75	1.04
61	Belarus	859,884	6,313	91048	668	0.38	0.23
62	Lithuania	842,277	8,210	316580	3086	1.33	1.08
63	Ecuador	800,320	35,038	44270	1938	0.19	0.68
64	Uruguay	795,316	6,820	227669	1952	0.95	0.68
65	Costa Rica	775,318	7,847	149973	1518	0.63	0.53
66	Azerbaijan	764,202	9,157	74283	890	0.31	0.31
67	Panama	746,695	7,987	168741	1805	0.71	0.63
68	Guatemala	744,754	16,679	40358	904	0.17	0.32
69	Saudi Arabia	735,958	8,978	20618	252	0.09	0.09
70	Sri Lanka	633,051	15,926	29363	739	0.12	0.26
71	Paraguay	630,718	18,079	86698	2485	0.36	0.87

Table 1. Continued

72	Kuwait	607,952	2,524	139019	577	0.58	0.20
73	Finland	600,718	2,265	108146	408	0.45	0.14
74	Dominican Republic	570,889	4,354	51783	395	0.22	0.14
75	Palestine	565,656	5,088	106850	961	0.45	0.34
76	Latvia	556,891	5,073	300648	2739	1.26	0.96
77	Myanmar	556,256	19,319	10113	351	0.04	0.12
78	Singapore	514,880	926	86898	156	0.36	0.05
79	Venezuela	508,968	5,572	17982	197	0.08	0.07
80	Moldova	488,899	11,009	121655	2739	0.51	0.96
81	Libya	480,945	6,169	68481	878	0.29	0.31
82	Bahrain	477,750	1,432	265783	797	1.11	0.28
83	Ethiopia	467,860	7,429	3912	62	0.02	0.02
84	Egypt	461,299	23,519	4374	223	0.02	0.08
85	Mongolia	459,183	2,152	136497	640	0.57	0.22
86	Estonia	441,941	2,148	332791	1617	1.39	0.57
87	Armenia	411,878	8,253	138575	2777	0.58	0.97
88	Honduras	406,872	10,608	40045	1044	0.17	0.37
89	Oman	372,060	4,225	69970	795	0.29	0.28
90	Bosnia and Herzegovina	367,025	15,232	113013	4690	0.47	1.65
91	Qatar	352,894	660	125683	235	0.53	0.08
92	Kenya	322,614	5,633	5793	101	0.02	0.04
93	Zambia	310,474	3,941	16154	205	0.07	0.07
94	Cyprus	298,235	798	244126	653	1.02	0.23
95	North Macedonia	290,915	8,851	139646	4249	0.58	1.49
96	Algeria	262,994	6,762	5827	150	0.02	0.05
97	Botswana	260,491	2,603	107254	1072	0.45	0.38
98	Nigeria	254,137	3,141	1185	15	0.00	0.01
99	Uzbekistan	234,600	1,612	6848	47	0.03	0.02
100	Zimbabwe	232,213	5,379	15263	354	0.06	0.12
101	Montenegro	227,859	2,646	362720	4212	1.52	1.48
102	Mozambique	224,815	2,189	6880	67	0.03	0.02
103	Kyrgyzstan	200,214	2,937	29887	438	0.13	0.15
104	Luxembourg	176,736	982	275067	1528	1.15	0.54
105	Afghanistan	171,673	7,524	4254	186	0.02	0.07
106	Maldives	162,974	290	293116	522	1.23	0.18
107	Uganda	162,901	3,577	3388	74	0.01	0.03

Table 1. Continued

108	Ghana	158,159	1,431	4923	45	0.02	0.02
109	Namibia	156,913	3,997	59990	1528	0.25	0.54
110	Cameroon	118,675	1,915	4297	69	0.02	0.02
111	China	107,288	4,636	75	3	0.00	0.00
112	Iceland	99,764	58	289304	168	1.21	0.06
113	Angola	98,568	1,899	2855	55	0.01	0.02
114	DRC	85,822	1,316	913	14	0.00	0.00
115	Senegal	85,495	1,958	4897	112	0.02	0.04
116	Malawi	85,106	2,599	4270	130	0.02	0.05
117	Ivory Coast	81,253	791	2961	29	0.01	0.01
118	Malta	70,437	594	158837	1339	0.67	0.47
119	Fiji	63,543	823	70058	907	0.29	0.32
120	Madagascar	62,844	1,335	2179	46	0.01	0.02
121	Guyana	62,465	1,202	78798	1516	0.33	0.53
122	Sudan	59,939	3,831	1317	84	0.01	0.03
123	Mauritania	58,584	973	12084	201	0.05	0.07
124	Cabo Verde	55,856	400	98721	707	0.41	0.25
125	Syria	53,148	3,038	2922	167	0.01	0.06
126	Guinea	36,354	438	2651	32	0.01	0.01
127	Tanzania	33,549	796	537	13	0.00	0.00
128	Aruba	33,544	198	312029	1842	1.31	0.65
129	Bahamas	33,005	768	82647	1923	0.35	0.67
130	Lesotho	32,434	696	14948	321	0.06	0.11
131	Hong Kong	30,955	227	4075	30	0.02	0.01
132	Faeroe Islands	30,571	24	621804	488	2.60	0.17
133	Mali	30,303	717	1430	34	0.01	0.01
134	Haiti	30,121	809	2590	70	0.01	0.02
135	Mauritius	28,689	762	22498	598	0.09	0.21
136	Benin	26,567	163	2102	13	0.01	0.00
137	Somalia	26,260	1,345	1581	81	0.01	0.03
138	New Zealand	25,050	53	5008	11	0.02	0.00
139	Congo	23,874	375	4160	65	0.02	0.02
140	CAR	14,187	113	2857	23	0.01	0.01
141	Gambia	11,924	365	4719	144	0.02	0.05
142	Yemen	11,718	2,114	379	68	0.00	0.02
143	Niger	8,728	303	341	12	0.00	0.00
144	Bhutan	8,683	5	11055	6	0.05	0.00

Table 1. Continued

145	Comoros	8,012	160	8905	178	0.04	0.06
146	Guinea-Bissau	7,889	164	3861	80	0.02	0.03
147	Sierra Leone	7,661	125	930	15	0.00	0.01
148	Caribbean Netherlands	7,455	31	280063	1165	1.17	0.41
149	Liberia	7,360	290	1402	55	0.01	0.02
150	Chad	7,214	190	420	11	0.00	0.00
151	Sao Tome and Principe	5,922	71	26230	314	0.11	0.11

Data used were obtained from WHO/World meter's as at 29thJanuary -4thFebruary, 2022

Figures obtained for USA were used in determining the comparison factor (CF) or Oyepata Factor which is a ratio of figure obtained to that of a particular country population divided by that of the USA.

1M POP means Per million population

Values of CF1 (or OF1) and CF2 (or OF2) is Comparison Factor. It represents case/incidence (CF1) and mortality index (CF2).

Factor of more than 1 = very high infection and mortality index

Factor of approximately 1 = high infection and mortality index

Factor of ≤ 1 but ≥ 0.5 = moderately high infection and mortality index

Factor of ≤ 0.5 but ≥ 0.1 = low infection and mortality index

Factor of < 0.1 = very low infection, mortality, and recovery index

These cut-off values have been supported and referenced in reputable publications (2,9,13,25).

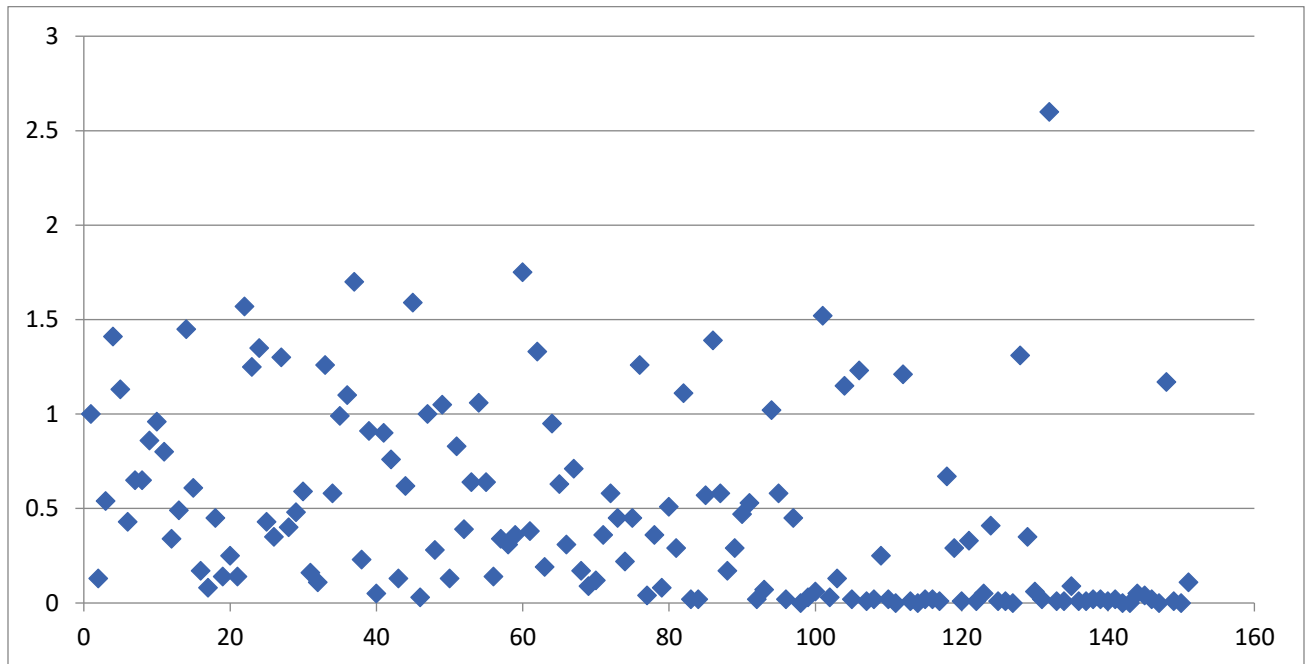


Figure 1. Graph Showing Comparison Factor Per Country Relative to USA January 29 to February 4, 2022.

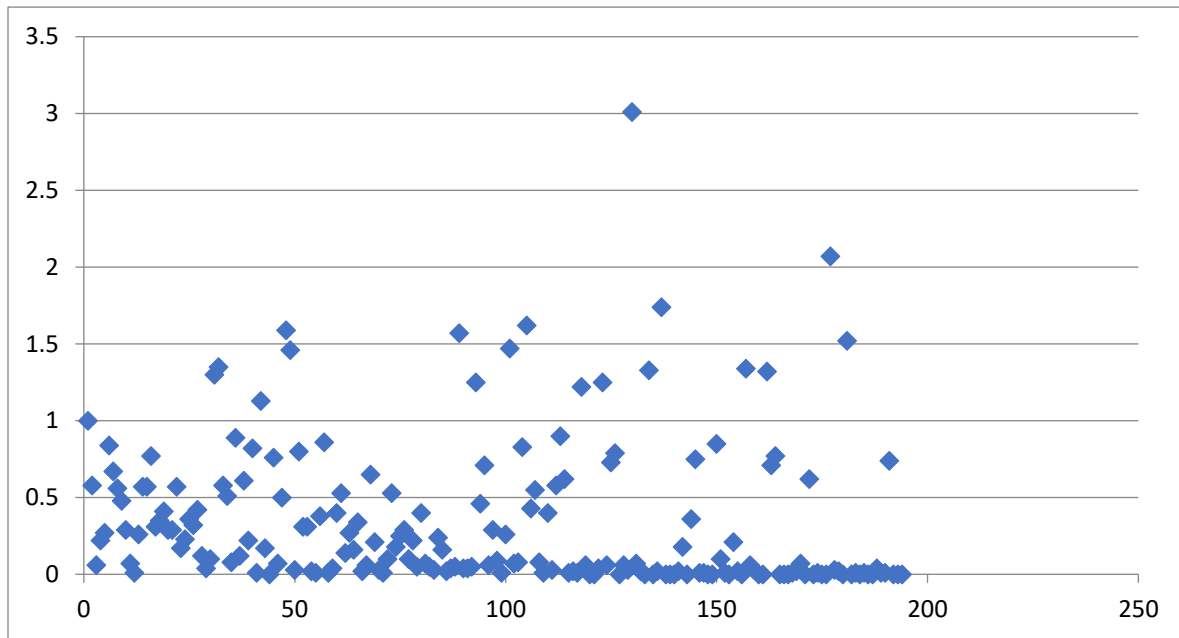


Figure 2. Graph Showing Death Oyépatá Factor Caused by Covid-19 for Each Country Relative to USA as at 19-25 January 2022.

There is a good chance that the virus may spread quickly over African populations in a short period of time, exposing a huge number of people to the virus without showing any symptoms and allowing them to recover fully. As a result, more comprehensive COVID-19 testing is necessary, including antibody testing, which will reveal who has been exposed rather than the more common antigen testing, which only shows an active illness condition. This will have a substantial impact on the amount and quality of time and resources required by a certain region. Gates argued that emerging countries required more effective health-care systems (27,28). When the Omicron strain first surfaced in South Africa, only about a quarter of the population had received all their vaccinations, and only a few people had received booster shots. According to some specialists, the virus had a considerably larger possibility to mutate into new forms due to the low vaccination coverage. Since Omicron appears to be gentler than previous Covid variants, it may have gone the other way. Better healthcare systems in developing countries would also imply more widespread testing and a lower chance of infecting others if people have the virus but are unaware of it (29,30).

In addition, as compared to the American continent, most European countries have a lower death rate. When compared to earlier studies on the virus's

cumulative effect, these findings are intriguing (30,31). Even though Omicron was thought to have been discovered on the continent, Africa has been the least affected by the variety throughout its evolution. This shows that Africans' systems have evolved a more stable, stronger, and quicker immune response, lowering the risk of disease-related health consequences. Compared to previous cumulative observations (32,33), though the mortality rate remained higher than other western countries, from available data, Africa, which is generally classified as under-developed, does not have alarming medical consequences of the virus, and when infected they tend to recover faster with a lower chance of complications and mortality.

Africans live in close quarters, in contrast to most western countries, which have a solitary system (34,36,37). As a result, most people in Africa are likely to have been exposed to the virus and may have spread it faster without realizing it or having serious symptoms. The causes behind this fortunately unexpected result have baffled many analysts throughout the world. According to studies, African children's immune systems grow sooner and more robustly than Dutch youngsters due to poor health and the environment (38,39). Childhood Exposure to harmful organisms may have bolstered the immune system and protected children from acquiring allergies

and other infectious disorders when they were exposed to comparable allergens or infections in the future (40,41,42). This viewpoint is backed up by statistics and a comparative factor gathered in Haiti. Haiti is currently the poorest country in Latin America and the Caribbean, and one of the world's least developed countries (25,43,44). They have one of the lowest rates of illness and mortality, resulting in a comparative factor with little to no significance. Thus, in poor nations, childhood or early exposure to some diseases may have prompted a stronger immune response to the same or related infections. As a result, it's plausible that the environment and inadequate hygiene may have contributed to the pandemic's unexpectedly minor influence over time.

Limitation of the study

The research depends on official statistics, which may or may not be totally accurate because some regions or nations may under or over report incidences of viral infection.

Conclusion

The development of the Omicron variety appears to have complicated COVID-19's approach and comprehension. As a result, the virus has had a long-term impact all over the world. Africa, on the other hand, is not particularly afflicted by all the virus's strains. As a result, the rest of the world must research the cause for this "African exception" and maybe comprehend its ramifications in terms of potential immunity.

Conflict of Interest

The authors declare that they have not any potential conflicts of interest.

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