

COVID-19: A Comparative Study of Asian and European Countries

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Abstract:

Since December 2019, when novel coronavirus disease 2019 (COVID-19) emerged in Wuhan city and rapidly spread throughout the world, it was needed to compare the different parameters of COVID-19 in infected countries of Asia and Europe. In this paper, we have considered three parameters, i.e., numbers of confirmed cases, deaths and recovered in the period between 12-04-2020 to 19-04-2020. The total numbers of confirmed COVID-19 cases and deaths in Asian countries are 383157 and 14786 while in European countries the numbers are 1089256 and 101836. The Asian countries with most number of deaths are China (4632), Iran (5118) and Turkey (16060). European countries with most number of deaths are Spain (20453), Italy (23660), France (19718), Germany (4642) and UK (16060). In the study period, the rate of confirmed cases increases in Bangladesh by 295.49% and Russia by 171.74%. China, Iran and Turkey in Asia and France, Germany, Italy, Spain and UK in Europe are the highly affected countries. The cases in Europe are higher than Asia. The coming 1-2 months are more crucial in such circumstances. Since the confirm vaccine for COVID-19 is not available yet, therefore some preventive measures may reduce the spread of this pandemic.

Keywords: COVID-19, Pandemic, Asia, Europe

INTRODUCTION

The first case of COVID-19 was first detected in the city of Wuhan, China in December-2019. Currently, this virus is affecting 210 countries and territories around the world reported 2,585,392 total confirmed cases, 179,866 total deaths and 705,754 recoveries according to the report of [1] till 19-04-2020. These numbers are rapidly increasing day by day. The name of the coronavirus is due to the shape of the virus with presence of crown like spikes on their surface, see [2], [3] and [4]. Now days it is assumed that the bats are the source of originating coronavirus [5]. According to the study of [6] more than 66 viruses are detected or isolated in the tissues of bats which can cause several types of diseases in the human body and also in animals. In various studies it is stated that bats are the source of transmission of major viruses including SARS-CoV-2 [7], SARS-CoV[8], Ebola [9], Rabies [10], MERS-CoV[11].

According to [12], coronavirus can spread from one person to another by coughing an infected person, sneezing or by touching the surface or objects which are touched by the infected person or contained virus. Further majority of the cases are resulted as close contact in the crowded areas. Recently, the rapid spread of coronavirus in Italy was due to the ignorance and not isolating themselves from the crowded areas. During the first 2 months of the current outbreak, Covid-19 spread rapidly throughout China and caused varying degrees of illness [13]. Lock down can play a major role in controlling the spread of COVID-19[14]. [14] Considered

three parameters, i.e., confirmed case, number of deaths, and death rate per 1000 confirmed case and compared the infected countries of Asia, America and Europe. The aim of the present study is to analyze the spread of COVID-19 in Asian and European countries.

MATERIAL AND METHODS

Collection of data: COVID-19 confirmed cases, deaths and recoveries are collected from [1]. Seven days data from 12-04-2020 to 19-04-2020 are selected for present study.

Parameters used in study: Following [1] and [14], three parameters such as COVID-19 confirmed cases, number of deaths, and number of recovered are used in the present study.

Comparison: The comparison of the said data for seven days is used to assess the progress in the disease. Mainly comparison between the Asian and European countries is analyzed.

Table 1: Confirmed cases, deaths and total recoveries in Asian Countries

Sr #	Country	Confirmed cases			Confirmed Deaths			Total Recovered		
		A	B	C	A	B	C	A	B	C
1	Afghanistan	607	996	64.09	18	33	83.33	32	131	309.38
2	Armenia	1013	1291	27.44	13	20	53.85	197	545	176.65
3	Azerbaijan	1098	1398	27.32	11	19	72.73	250	712	184.80
4	Bahrain	1136	1881	65.58	6	7	16.67	558	759	36.02
5	Bangladesh	621	2456	295.49	34	91	167.65	39	75	92.31
6	China	82052	82735	0.83	3339	4632	38.72	77575	77062	-0.66
7	Cyprus	633	767	21.17	11	12	9.09	65	81	24.62
8	Georgia	257	394	53.31	3	4	33.33	67	93	38.81
9	India	9205	17615	91.36	331	559	68.88	1080	2854	164.26
10	Indonesia	4241	6575	55.03	373	582	56.03	359	686	91.09
11	Iran	71686	82211	14.68	4474	5118	14.39	43894	57023	29.91
12	Iraq	1352	1539	13.83	76	82	7.89	640	1009	57.66

13	Israel	11145	13491	21.05	103	172	66.99	1627	3754	130.73
14	Japan	7370	10797	46.50	123	236	91.87	784	1159	47.83
15	Kazakhstan	951	1676	76.24	10	17	70.00	99	400	304.04
16	Kuwait	1234	1915	55.19	1	7	600.00	142	305	114.79
17	Lebanon	630	673	6.83	20	21	5.00	80	102	27.50
18	Malaysia	4683	5389	15.08	76	89	17.11	2108	3197	51.66
19	Oman	599	1266	111.35	4	7	75.00	109	233	113.76
20	Pakistan	5230	8348	59.62	91	168	84.62	1028	1868	81.71
21	Philippines	4648	6259	34.66	297	409	37.71	197	572	190.36
22	Qatar	2979	5448	82.88	7	8	14.29	275	518	88.36
23	S. Korea	10512	10661	1.42	214	234	9.35	7368	8042	9.15
24	Saudi Arabia	4462	9362	109.82	59	97	64.41	761	1398	83.71
25	Singapore	2532	6588	160.19	8	11	37.50	560	768	37.14
26	Sri Lanka	210	271	29.05	7	7	0.00	56	96	71.43
27	Thailand	2551	2765	8.39	38	47	23.68	1218	1928	58.29
28	Turkey	56956	86306	51.53	1198	2017	68.36	3446	11976	247.53
29	UAE	4123	6781	64.47	22	41	86.36	680	1286	89.12
30	Uzbekistan	865	1565	80.92	4	5	25.00	66	225	240.91
Total:		298736	383157	28.26	11002	14786	34.39	146508	180611	23.28

A=12-04-2020, B=19-04-2020, C(percentage more variation)={(B-A)/A}*100

Table 2: Confirmed cases, deaths and total recoveries in European Countries

Sr #	Country	Confirmed cases			Confirmed Deaths			Total Recovered		
		A	B	C	A	B	C	A	B	C
1	Albania	446	562	26.01	23	26	13.04	217	314	44.70
2	Andorra	638	713	11.76	29	36	24.14	128	235	83.59
3	Austria	13945	14749	5.77	350	452	29.14	6987	10501	50.29
4	Belarus	2578	4779	85.38	26	47	80.77	203	494	143.35
5	Belgium	29647	38496	29.85	3600	5683	57.86	6463	8757	35.49
6	Bosnia	1009	1285	27.35	39	48	23.08	193	347	79.79
7	Bulgaria	675	894	32.44	29	42	44.83	68	161	136.76
8	Croatia	1600	1871	16.94	23	47	104.4	373	709	90.08
9	Czechia	5991	6746	12.60	138	186	34.78	464	1298	179.74
10	Denmark	6174	7384	19.60	273	355	30.04	2123	4141	95.05
11	Estonia	1309	1528	16.73	25	40	60.00	98	164	67.35
12	Finland	2974	3783	27.20	56	94	67.86	300	1700	466.67
13	France	132591	152894	15.31	14393	19718	37.00	27186	36578	34.55
14	Germany	127854	145742	13.99	3022	4642	53.61	60300	88000	45.94
15	Greece	2114	2235	5.72	98	113	15.31	269	269	0.00
16	Hungary	1410	1916	35.89	99	189	90.91	118	250	111.86
17	Iceland	1701	1771	4.12	8	9	12.50	889	1291	45.22
18	Ireland	9655	15251	57.96	334	610	82.63	25	77	208.00
19	Italy	156363	178972	14.46	19899	23660	18.90	34211	47055	37.54
20	Lithuania	1053	1298	23.27	23	35	52.17	97	242	149.48
21	Luxembourg	3281	3550	8.20	66	73	10.61	500	627	25.40
22	Moldova	1662	2472	48.74	31	67	116.2	94	457	386.17
23	Netherlands	25587	32655	27.62	2737	3684	34.60	250	250	0.00
24	North Macedonia	828	1207	45.77	34	51	50.00	41	179	336.59
25	Norway	6525	7078	8.48	128	165	28.91	32	32	0.00
26	Poland	6674	9287	39.15	232	360	55.17	439	1040	136.90
27	Portugal	16585	20206	21.83	504	714	41.67	277	610	120.22
28	Romania	6300	8746	38.83	316	451	42.72	852	1892	122.07
29	Russia	15770	42853	171.74	130	361	177.7	1291	3291	154.92
30	San Marino	356	461	29.49	35	39	11.43	53	60	13.21
31	Serbia	3630	6318	74.05	80	122	52.50	400	753	88.25
32	Slovakia	742	1161	56.47	2	12	500.0	23	229	895.65
33	Slovenia	1205	1330	10.37	53	74	39.62	150	192	28.00
34	Spain	166831	198674	19.09	17209	20453	18.85	62391	77357	23.99
35	Sweden	10483	14385	37.22	899	1540	71.30	381	550	44.36
36	Switzerland	25415	27740	9.15	1106	1393	25.95	12700	17800	40.16
37	UK	84279	120067	42.46	10612	16060	51.34	N/A	N/A	N/A
38	Ukraine	2777	5449	96.22	83	141	69.88	89	347	289.89
Total		881110	1089256	23.62	76768	101836	32.65	221548	309495	39.70

A=12-04-2020, B=19-04-2020, C(PERCENTAGE MORE VARIATION)={(B-A)/A}*100, N/A= NOT APPLICABLE

RESULTS AND DISCUSSIONS

Asian countries data is presented in Table 1 and Figures 1-3 while for European countries the data is presented in Table 2 and Figures 4-6. We discuss these results as following:

From Table 1 and Figures 1-3, it is found that after seven days the number of confirmed cases reported in China and South Korea are almost constant. But in other Asian countries the cases increased. In Bangladesh, India, Oman, Saudi Arabia and Singapore, it is increased by 295.49, 91.36, 111.35, 109.82 and 160.19 percent. The death rate of Bangladesh is 92.31% which is very alarming. The other countries with high death rate are Japan (91.87%) and Kuwait (600%). Total recovered cases in Turkey are 247.53%, which is a sensible number. Confirmed Cases in Pakistan are also increasing day by day and it reached to 8348 cases on 19-04-2020 and there is an increase of 59.62% in seven days, the death rate is also increased by 84.62% in seven days. In Asian countries after China, India, Iran, Israel, Japan, South Korea and Turkey are the countries where the coronavirus confirmed cases are at its peak and increasing day by day. On 19-04-2020, the Asian country which has maximum number of deaths is Iran with 5118 deaths and the minimum number of death is in Georgia with 4 deaths.

From Table 2 and Figures 4-6, we can see that almost in all the European countries the confirmed cases of COVID-19 dramatically increased. According to the report on 19-04-2020, Spain has the maximum number of confirmed cases i.e., 198674 with an increase of 19.09% in seven days and it crossed Italy (178972). The other countries with maximum confirmed cases after Italy and Spain are France (152894), Germany (145742), UK (120067), Russia (42853), Belgium (38496) and Netherlands (32655). The minimum number is in San Marino with 461 COVID-19 cases with 29.49% increase in seven days period. In Russia and Ukraine, the confirmed cases rate is increased by 171.74 and 96.22 percent. The highest number of deaths is in Italy, Spain, France and UK with 23660, 20453, 19718 and 16060 deaths on 19-04-2020 and an increase of 18.90, 18.85, 37.00 and 51.34 percent in death rate. As for total recovered cases are concerned, Finland (466.67%), Ireland (208.00%), Moldova (386.17%), North Macedonia (336.59%), Slovakia (895.65%) and Ukraine (289.89%) have the highest recovery rate in the given period among European countries. While France (34.55%), Germany (35.94%), Italy (37.54%) and Spain have 23.99% recovery rate which is very low as compared to confirmed cases. It shows more damage is expected in these countries in coming weeks or months. Based on table 2, mostly COVID-19 infected countries in Europe are Spain, Italy, France, Germany and UK.

In general, by comparing Europe with Asia, the intensity of spread of COVID-19 pandemic is higher in Europe than Asia. The total numbers of confirmed cases and deaths in European countries are 1089256 and 101836 respectively while in Asian

countries the numbers are 383157 and 14786. Only China combats with COVID-19 pandemic in a better way. That is through lockdown, social distancing, building COVID-19 hospitals, wearing masks etc. Since this pandemic has not been ended yet and still rapidly spreading, therefore more damage is expected in coming 1-2 months throughout the world especially Spain, Italy, France, Germany, UK, Belgium, Netherlands and Russia in Europe and Iran, Turkey, India, Pakistan, Bangladesh, UAE, Israel, Japan, South Korea and Saudi Arabia in Asia.

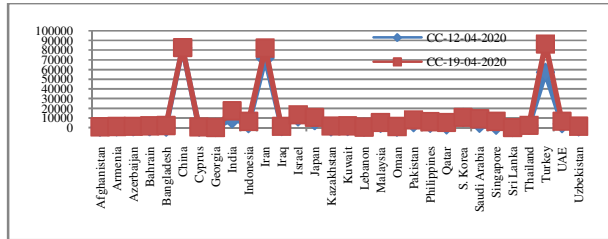


Figure 1: Confirmed Cases (CC) in Asian Countries

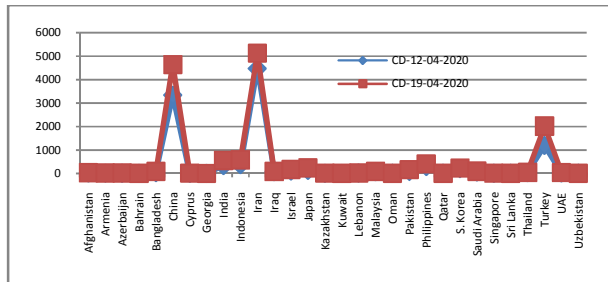


Figure 2: Confirmed Death (CD) in Asian Countries

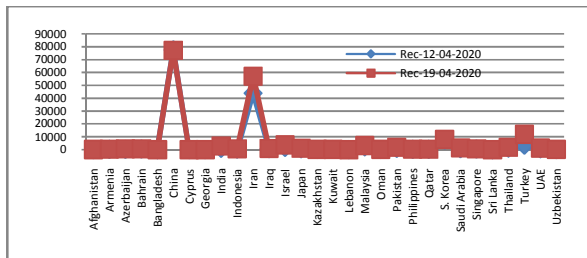


Figure 3: Recoveries (Rec) in Asian Countries

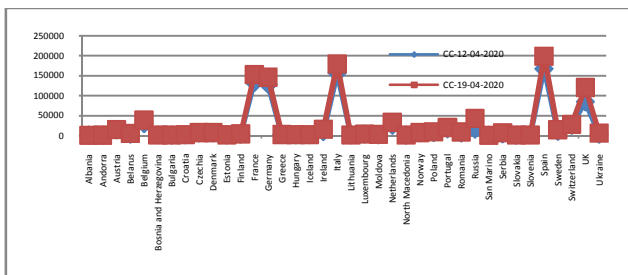


Figure 4: Confirmed Cases (CC) in European Countries

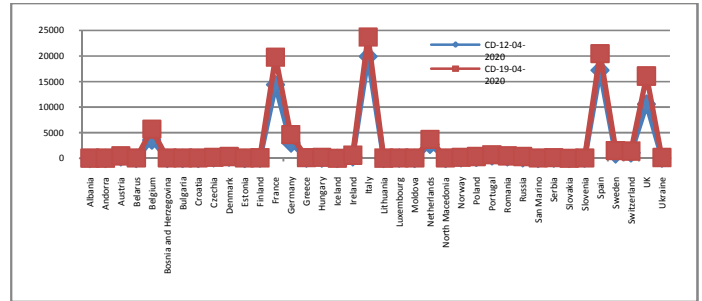


Figure 5: Confirmed Deaths (CD) in European Countries

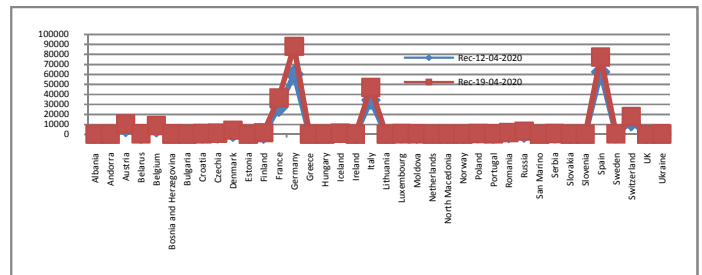


Figure 6: Recoveries (Rec) in European Countries

CONCLUSION

COVID-19 has spread rapidly since it was first identified in Wuhan and has been shown to have a wide spectrum of severity. Based on three parameters, i.e., confirmed cases, deaths and number of recoveries due to the COVID-19, China, Iran and Turkey in Asia and France, Germany, Italy, Spain and UK in Europe are the highly effected countries. In general, the spread of this disease increases day by day in both the continents but the cases of COVID-19 in Europe are higher than Asia. Since the confirmed vaccine for this disease is not available yet, therefore some preventive measures may reduce the intensity and spread of this pandemic. The coming 1-2 months are more crucial in such circumstances.

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