

1 Introduction

The EDA Report provides exploratory data analysis information on objects that inherit data.frame and data.frame.

1.1 Information of Dataset

The dataset that generated the EDA Report is an **'data.frame'** object. It consists of **154,105 observations** and **67 variables**.

1.2 Information of Variables

The variable information of the data set that generated the EDA Report is shown in the following table.:

Information of Variables						
variables	types	missing_count	missing_percent	unique_count	unique_ratio	
iso_code	character	0	0.00	238	0.00	
continent	character	9280	6.02	7	0.00	
location	character	0	0.00	238	0.00	
date	character	0	0.00	743	0.00	
total_cases	numeric	2671	1.73	82298	0.53	
new_cases	numeric	2723	1.77	19424	0.12	
new_cases_smoothed	numeric	3874	2.51	36113	0.23	
total_deaths	numeric	19966	12.96	32528	0.21	
new_deaths	numeric	19791	12.84	4372	0.02	

variables	types	missing_count	missing_percent	unique_count	unique_ratio
new_deaths_smoothed	numeric	19923	12.93	10034	0.06
total_cases_per_million	numeric	3377	2.19	112647	0.73
new_cases_per_million	numeric	3429	2.23	61076	0.39
new_cases_smoothed_per_million	numeric	4575	2.97	70143	0.45
total_deaths_per_million	numeric	20659	13.41	71804	0.46
new_deaths_per_million	numeric	20484	13.29	9218	0.06
new_deaths_smoothed_per_million	numeric	20616	13.38	10764	0.07
reproduction_rate	numeric	37840	24.55	389	0.00
icu_patients	logical	133751	86.79	3	0.00
icu_patients_per_million	logical	133751	86.79	3	0.00
hosp_patients	logical	132576	86.03	3	0.00
hosp_patients_per_million	logical	132576	86.03	3	0.00
weekly_icu_admissions	logical	149828	97.22	3	0.00
weekly_icu_admissions_per_million	logical	149828	97.22	3	0.00
weekly_hosp_admissions	logical	145436	94.37	3	0.00
weekly_hosp_admissions_per_million	logical	145436	94.37	3	0.00
new_tests	logical	93089	60.41	2	0.00
total_tests	logical	91454	59.35	3	0.00
total_tests_per_thousand	logical	91454	59.35	3	0.00

variables	types	missing_count	missing_percent	unique_count	unique_ratio
new_tests_per_thousand	logical	93089	60.41	3	0.00
new_tests_smoothed	logical	79773	51.77	3	0.00
new_tests_smoothed_per_thousand	logical	80479	52.22	3	0.00
positive_rate	logical	84683	54.95	2	0.00
tests_per_case	logical	85340	55.38	2	0.00
tests_units	logical	154105	100.00	1	0.00
total_vaccinations	numeric	114196	74.10	39167	0.25
people_vaccinated	numeric	115918	75.22	37165	0.24
people_fully_vaccinated	numeric	118752	77.06	34012	0.22
total_boosters	logical	141162	91.60	2	0.00
new_vaccinations	numeric	121071	78.56	27596	0.17
new_vaccinations_smoothed	numeric	81191	52.69	38565	0.25
total_vaccinations_per_hundred	numeric	114196	74.10	15169	0.09
people_vaccinated_per_hundred	numeric	115918	75.22	8648	0.05
people_fully_vaccinated_per_hundred	numeric	118752	77.06	8119	0.05
total_boosters_per_hundred	logical	141162	91.60	3	0.00
new_vaccinations_smoothed_per_million	numeric	81191	52.69	12096	0.07
new_people_vaccinated_smoothed	numeric	82159	53.31	31167	0.20
new_people_vaccinated_smoothed_per_hundred	numeric	82159	53.31	1430	0.00

variables	types	missing_count	missing_percent	unique_count	unique_ratio
stringency_index	numeric	33322	21.62	180	0.0001
population	numeric	1023	0.66	237	0.0001
population_density	numeric	16939	10.99	209	0.0001
median_age	numeric	26119	16.95	137	0.0001
aged_65_older	numeric	27509	17.85	189	0.0001
aged_70_older	numeric	26806	17.39	187	0.0001
gdp_per_capita	numeric	25687	16.67	196	0.0001
extreme_poverty	logical	69355	45.01	3	0.0001
cardiovasc_death_rate	numeric	27120	17.60	191	0.0001
diabetes_prevalence	numeric	20609	13.37	148	0.0001
female_smokers	logical	55752	36.18	3	0.0001
male_smokers	logical	57168	37.10	2	0.0001
handwashing_facilities	numeric	90503	58.73	97	0.0001
hospital_beds_per_thousand	numeric	39386	25.56	102	0.0001
life_expectancy	numeric	10285	6.67	209	0.0001
human_development_index	numeric	27645	17.94	155	0.0001
excess_mortality_cumulative_absolute	logical	148871	96.60	3	0.0001
excess_mortality_cumulative	logical	148871	96.60	3	0.0001
excess_mortality	logical	148871	96.60	3	0.0001

variables	types	missing_count	missing_percent	unique_count	unique_ratio
excess_mortality_cumulative_per_million	logical	148871	96.60	3	0.00


The target variable of the data is '**NULL**', and the data type of the variable is **NULL(You did not specify a target variable)**.

1.3 About EDA Report

EDA reports provide information and visualization results that support the EDA process. In particular, it provides a variety of information to understand the relationship between the target variable and the rest of the variables of interest.

2 Univariate Analysis

2.1 Descriptive Statistics

edaData		
67 Variables 154105 Observations		
iso_code		
n	missing	distinct
154105	0	238
lowest : ABW AFG AGO AIA ALB , highest: WSM YEM ZAF ZMB ZWE		
continent 		
n	missing	distinct
144825	9280	6

lowest :	Africa	Asia	Europe	North America	Oceania
highest:	Asia	Europe	North America	Oceania	South America

Value	Africa	Asia	Europe	North America	Oceania
Frequency	36557	33677	34443	23111	8131
Proportion	0.252	0.233	0.238	0.160	0.056
Value	South America				
Frequency	8906				
Proportion	0.061				

location

n	missing	distinct
154105	0	238

lowest :	Afghanistan	Africa	Albania	Algeria	Andorra
highest:	Wallis and Futuna	World	Yemen	Zambia	Zimbabwe

date

n	missing	distinct
154105	0	743

lowest :	2020-01-01	2020-01-02	2020-01-03	2020-01-04	2020-01-05
highest:	2022-01-08	2022-01-09	2022-01-10	2022-01-11	2022-01-12

total_cases

1

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25
151434	2671	82297	1	2162241	4095118	13	48	1599
.50	.75	.90	.95					
21180	258804	1566969	5263910					

lowest :	1	2	3	4	5
highest:	305529037	307514311	310700502	313578302	317243969

new_cases

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
151382	2723	19423	0.985	8805	16694	0	0	1	71	935	6680	27380

lowest : -74347 -59375 -19796 -17076 -10034 , highest: 2620119 2877800 2930635 3186191 3665667

new_cases_smoothed

n	missing	distinct	Info	Mean	Gmd	.05	.10
150231	3874	36112	0.999	8616	16280	0.000	0.143
.25	.50	.75	.90	.95			
5.857	94.000	987.643	6754.857	27100.214			

lowest :	-6223.000	-5648.714	-5407.714	-4903.286	-4464.000
highest:	2310079.714	2469175.571	2562892.286	2609909.143	2768702.857

total_deaths

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25
134139	19966	32527	1	53206	99809	3	9	69
.50	.75	.90	.95					

685	6523	51992	191554
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lowest : 1 2 3 4 5 , highest: 5485976 5489650 5496078 5504390 5513557

new_deaths

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
134314	19791	4371	0.927	170.3	319.7	0	0	0	2	19	170	723

lowest : -1918 -1583 -1358 -729 -679 , highest: 17146 17192 17381 17442 18062

new_deaths_smoothed

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25
134182	19923	10033	0.99	169.8	317.6	0.000	0.000	0.143
.50	.75	.90	.95					
2.286	20.143	171.415	730.964					

lowest :	-232.143	-221.857	-215.286	-125.000	-117.286
highest:	14495.857	14586.143	14594.571	14607.571	14704.857

total_cases_per_million

n	missing	distinct	Info	Mean	Gmd	.05	.10
150728	3377	112646	1	23786	34609	9.367e+00	5.307e+01
.25	.50	.75	.90	.95			
5.206e+02	4.047e+03	3.120e+04	8.004e+04	1.054e+05			

lowest :	0.001	0.002	0.003	0.004	0.005
highest:	326925.563	341391.525	361752.463	368978.980	373594.126

new_cases_per_million

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25
150676	3429	61075	0.986	113.4	187.5	0.000	0.000	0.025
.50	.75	.90	.95					
10.144	88.094	284.407	504.586					

lowest :	-3125.829	-2123.457	-1590.473	-471.097	-444.588
highest:	20360.938	20847.235	26858.430	37712.212	51427.491

new_cases_smoothed_per_million

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25
149530	4575	70142	0.999	109.4	172.2	0.000	0.019	1.454
.50	.75	.90	.95					
16.173	100.866	294.653	504.677					

lowest : -272.971 -266.220 -263.069 -258.793 -255.868 , highest: 7749.176 7824.192 7842.850 7890.826 8274.374

total_deaths_per_million

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25
133446	20659	71803	1	461.4	651.9	0.768	3.209	16.023
.50	.75	.90	.95					
107.673	630.972	1497.715	2012.445					

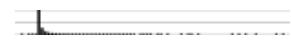
lowest : 0.000 0.001 0.002 0.003 0.004 , highest: 6083.260 6084.669 6085.808 6087.247 6089.945

new_deaths_per_million

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
133621	20484	9217	0.929	1.632	2.704	0.000	0.000	0.000	0.118	1.282	4.642	8.150

lowest : -75.911 -66.834 -66.116 -41.031 -37.814 , highest: 197.219 200.763 203.513 267.134 453.772

new_deaths_smoothed_per_million



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
133489	20616	10763	0.991	1.625	2.516	0.000	0.000	0.015	0.263	1.614	4.799	7.872

lowest : -10.844 -9.505 -9.462 -9.445 -9.440 , highest: 118.726 122.966 127.207 139.927 144.167

reproduction_rate



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
116265	37840	388	1	1.01	0.3741	0.43	0.63	0.83	1.01	1.18	1.39	1.55

lowest : -0.03 -0.02 -0.01 0.00 0.01 , highest: 4.90 5.05 5.11 5.64 5.93

icu_patients

n	missing	distinct
20354	133751	2

Value	FALSE	TRUE
Frequency	505	19849
Proportion	0.025	0.975

icu_patients_per_million

n	missing	distinct
20354	133751	2

Value	FALSE	TRUE
Frequency	1927	18427
Proportion	0.095	0.905

hosp_patients

n	missing	distinct
21529	132576	2

Value	FALSE	TRUE
Frequency	189	21340
Proportion	0.009	0.991

hosp_patients_per_million

n	missing	distinct
21529	132576	2

Value	FALSE	TRUE
Frequency	463	21066
Proportion	0.022	0.978

weekly_icu_admissions

n	missing	distinct
4277	149828	2

Value	FALSE	TRUE
Frequency	89	4188
Proportion	0.021	0.979

weekly_icu_admissions_per_million

n	missing	distinct
4277	149828	2

Value	FALSE	TRUE
Frequency	436	3841
Proportion	0.102	0.898

weekly_hosp_admissions

n	missing	distinct
8669	145436	2

Value	FALSE	TRUE
Frequency	38	8631
Proportion	0.004	0.996

weekly_hosp_admissions_per_million

n	missing	distinct
8669	145436	2

Value	FALSE	TRUE
Frequency	83	8586
Proportion	0.01	0.99

new_tests

n	missing	distinct	value
61016	93089	1	TRUE

Value	TRUE
Frequency	61016
Proportion	1

total_tests

n	missing	distinct
62651	91454	2

Value	FALSE	TRUE
Frequency	1	62650
Proportion	0	1

total_tests_per_thousand

n	missing	distinct
62651	91454	2

```
Value      FALSE  TRUE
Frequency   2835 59816
Proportion 0.045 0.955
```

new_tests_per_thousand

n	missing	distinct
61016	93089	2

```
Value      FALSE  TRUE
Frequency  33095 27921
Proportion 0.542 0.458
```

new_tests_smoothed

n	missing	distinct
74332	79773	2

```
Value      FALSE  TRUE
Frequency     96 74236
Proportion 0.001 0.999
```

new_tests_smoothed_per_thousand

n	missing	distinct
73626	80479	2

Value FALSE TRUE
Frequency 38684 34942
Proportion 0.525 0.475

positive_rate

n	missing	distinct	value
69422	84683	1	FALSE

Value FALSE
Frequency 69422
Proportion 1

tests_per_case

n	missing	distinct	value
68765	85340	1	TRUE

Value TRUE
Frequency 68765
Proportion 1

total_vaccinations

n	missing	distinct	Info	Mean	Gmd	.05	.10
39909	114196	39166	1	142393683	263469685	24879	64796
.25	.50	.75	.90	.95			

489698	3838804	23453099	137428720	596098555
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lowest :	0	1	2	3	4
highest:	9413645568	9444089301	9501754483	9535236663	9568884769

people_vaccinated

n	missing	distinct	Info	Mean	Gmd	.05	.10
38187	115918	37164	1	74934619	138227397	19065	45457
.25	.50	.75	.90	.95			
334908	2420333	14152331	75657714	303442990			

lowest :	0	1	2	3	4
highest:	4639504398	4647983025	4670592323	4679222032	4690581861

people_fully_vaccinated

n	missing	distinct	Info	Mean	Gmd	.05	.10
35353	118752	34011	1	56115617	103686647	8329	25002
.25	.50	.75	.90	.95			
223609	1768624	10230076	54474469	214568393			

lowest :	1	2	3	4	5
highest:	3950426015	3958116622	3980532730	3990075404	3998493787

total_boosters

n	missing	distinct	value
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12943

141162

1

TRUE

Value	TRUE
Frequency	12943
Proportion	1

new_vaccinations

n	missing	distinct	Info	Mean	Gmd	.05	.10
33034	121071	27595	1	1139973	2061870	328.3	1081.0
.25	.50	.75	.90	.95			
6618.8	40473.5	263662.8	1839330.2	5603357.8			

lowest : 0 1 2 3 4 , highest: 48342300 48426526 50825570 55051403 57665182

new_vaccinations_smoothed

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25
72914	81191	38564	1	529449	996240	68	196	1118
.50	.75	.90	.95					
9636	65764	438421	1575065					

lowest : 0 1 2 3 4 , highest: 42570233 42788804 42821568 42893111 43034790

total_vaccinations_per_hundred

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25
39909	114196	15168	1	62.97	64.06	0.43	1.55	9.30
.50	.75	.90	.95					
47.61	109.16	146.72	164.70					

lowest : 0.00 0.01 0.02 0.03 0.04 , highest: 321.00 321.52 322.27 323.27 323.86

people_vaccinated_per_hundred



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
38187	115918	8647	1	34.44	31.7	0.37	1.25	6.79	30.57	60.03	73.73	78.25

lowest : 0.00 0.01 0.02 0.03 0.04 , highest: 122.18 122.21 122.28 122.35 122.38

people_fully_vaccinated_per_hundred



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
35353	118752	8118	1	28.59	29.39	0.09	0.54	3.75	21.12	52.02	67.23	74.78

lowest : 0.00 0.01 0.02 0.03 0.04 , highest: 118.86 118.92 118.96 119.05 119.07

total_boosters_per_hundred

n	missing	distinct
12943	141162	2

Value	FALSE	TRUE
Frequency	7043	5900
Proportion	0.544	0.456

new_vaccinations_smoothed_per_million



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
72914	81191	12095	1	3431	3733	55	155	672	2276	4957	8150	10250

lowest : 0 1 2 3 4 , highest: 101235 109282 110205 117410 117497

new_people_vaccinated_smoothed



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25
71946	82159	31166	1	254695	481412	14	60	507
.50	.75	.90	.95					
4369	29938	219544	768017					

lowest :	0	1	2	3	4
highest:	100277150	100396711	100458634	100528832	100594156

new_people_vaccinated_smoothed_per_hundred



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
71946	82159	1429	1	0.1645	0.1972	0.002	0.007	0.029	0.085	0.213	0.405	0.543

lowest : 0.000 0.001 0.002 0.003 0.004 , highest: 10.123 10.928 11.021 11.741 11.750

stringency_index



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
120783	33322	179	1	55.12	23.48	19.44	26.85	40.74	55.56	71.30	81.48	87.04

lowest : 0.00 2.78 5.56 6.48 8.33 , highest: 95.37 96.30 97.22 98.15 100.00

population



n	missing	distinct	Info	Mean	Gmd	.05	.10
153082	1023	236	1	148377460	271696205	34010	77354
.25	.50	.75	.90	.95			
1273428	8715494	33933611	126050796	596581283			

lowest :	47	812	1368	1614	3528
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highest: 1444216102 2513672790 3330652550 4678444992 7874965730

Value	0.0e+00	1.0e+08	2.0e+08	3.0e+08	4.0e+08	6.0e+08	7.0e+08	1.2e+09	1.4e+09
Frequency	124911	14735	2741	1404	1412	722	1411	722	2136
Proportion	0.816	0.096	0.018	0.009	0.009	0.005	0.009	0.005	0.014

Value	2.5e+09	3.3e+09	4.7e+09	7.9e+09
Frequency	722	722	722	722
Proportion	0.005	0.005	0.005	0.005

For the frequency table, variable is rounded to the nearest 1e+08

population_density

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25
137166	16939	208	1	465	777	4.289	15.196	36.253
.50	.75	.90	.95					
85.129	212.865	450.419	1265.036					

lowest: 0.137 1.980 3.078 3.202 3.404

highest: 3457.100 7039.714 7915.731 19347.500 20546.766

Value	0	200	400	600	800	1200	1400	2000	3400	7000	8000	19400
Frequency	75741	38872	9776	4934	679	927	2020	689	680	721	721	684
Proportion	0.552	0.283	0.071	0.036	0.005	0.007	0.015	0.005	0.005	0.005	0.005	0.005

Value	20600
Frequency	722
Proportion	0.005

For the frequency table, variable is rounded to the nearest 200

median_age



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
127986	26119	136	1	30.58	10.48	17.6	18.7	22.2	29.9	39.1	43.1	44.4

lowest : 15.1 16.4 16.7 16.8 17.0 , highest: 45.5 46.2 46.6 47.9 48.2

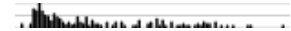
aged_65_older



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25
126596	27509	188	1	8.771	6.741	2.480	2.751	3.507
.50	.75	.90	.95					
6.614	14.178	19.002	19.724					

lowest : 1.144 1.307 2.168 2.339 2.345 , highest: 21.228 21.453 21.502 23.021 27.049

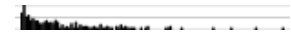
aged_70_older



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
127299	26806	186	1	5.54	4.534	1.387	1.530	2.063	3.915	8.678	12.527	13.491

lowest : 0.526 0.617 1.114 1.285 1.308 , highest: 14.524 14.924 15.957 16.240 18.493

gdp_per_capita



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
128418	25687	195	1	19683	20709	1416	1730	4467	12952	27937	46683	57410

lowest : 661.240 702.225 752.788 808.133 926.000

highest: 71809.251 85535.383 94277.965 104861.851 116935.600

extreme_poverty

n	missing	distinct
84750	69355	2

Value	FALSE	TRUE
Frequency	27099	57651
Proportion	0.32	0.68

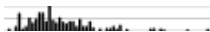
cardiovasc_death_rate



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
126985	27120	190	1	259.9	132.3	104.0	114.9	168.7	242.6	329.9	431.3	495.0

lowest : 79.370 85.755 85.998 86.060 92.243 , highest: 557.793 559.812 561.494 597.029 724.417

diabetes_prevalence



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
133496	20609	147	1	8.185	4.717	2.42	3.28	5.31	7.17	10.43	13.22	17.11

lowest : 0.99 1.82 1.91 2.16 2.42 , highest: 22.66 23.36 24.07 27.25 30.53

female_smokers

n	missing	distinct
98353	55752	2

Value	FALSE	TRUE
Frequency	12223	86130
Proportion	0.124	0.876

male_smokers

n	missing	distinct	value
96937	57168	1	TRUE

```
Value      TRUE
Frequency  96937
Proportion    1
```

handwashing_facilities



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
63602	90503	96	1	50.81	36.47	4.617	7.960	19.351	49.839	83.241	90.650	95.803

lowest : 1.188 2.117 2.735 4.472 4.617 , highest: 97.164 97.400 97.719 98.999 100.000

hospital_beds_per_thousand



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
114719	39386	101	1	3.026	2.504	0.500	0.700	1.300	2.400	3.861	6.300	7.400

lowest : 0.10 0.20 0.30 0.40 0.50 , highest: 8.80 11.00 12.27 13.05 13.80

life_expectancy



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
143820	10285	208	1	73.6	8.387	59.29	61.77	69.50	75.05	78.93	82.43	83.51

lowest : 53.28 54.24 54.33 54.69 54.70 , highest: 84.24 84.63 84.86 84.97 86.75

human_development_index



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
126460	27645	154	1	0.7258	0.1712	0.459	0.510	0.602	0.743	0.845	0.922	0.940

lowest : 0.394 0.397 0.398 0.433 0.434 , highest: 0.945 0.947 0.949 0.955 0.957

excess_mortality_cumulative_absolute

n	missing	distinct
5234	148871	2

Value	FALSE	TRUE
Frequency	6	5228
Proportion	0.001	0.999

excess_mortality_cumulative

n	missing	distinct
5234	148871	2

Value	FALSE	TRUE
Frequency	578	4656
Proportion	0.11	0.89

excess_mortality

n	missing	distinct
5234	148871	2

Value	FALSE	TRUE
Frequency	331	4903
Proportion	0.063	0.937

excess_mortality_cumulative_per_million

n	missing	distinct
5234	148871	2

Value	FALSE	TRUE
Frequency	16	5218
Proportion	0.003	0.997

Variables with all observations missing:

tests_units

2.2 Normality Test of Numerical Variables

2.2.1 Statistics and Visualization of (Sample) Data

[total_cases]

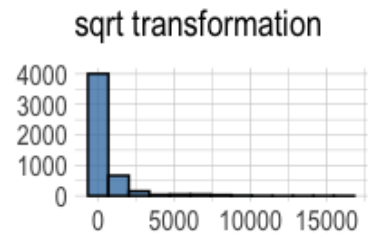
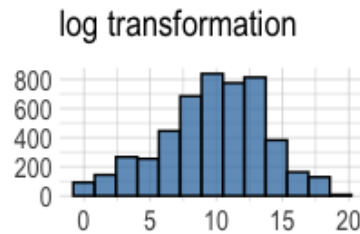
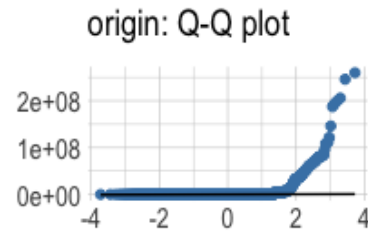
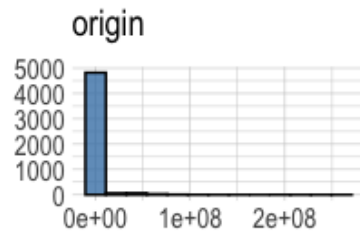
normality test : Shapiro-Wilk normality test

statistic : 0.17348, p-value : 2.15331E-91

skewness and kurtosis

type	skewness	kurtosis
original	10.9461037	169.697001
log transformation	-0.3480668	2.793494
sqrt transformation	4.9071020	33.446832

Normality Diagnosis Plot (x)



[new_cases]

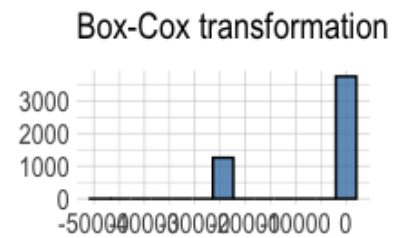
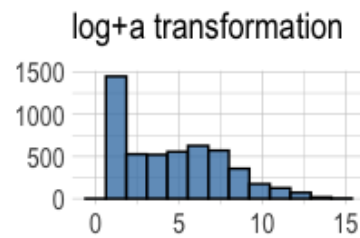
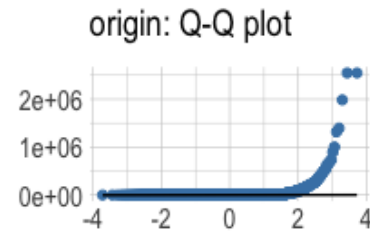
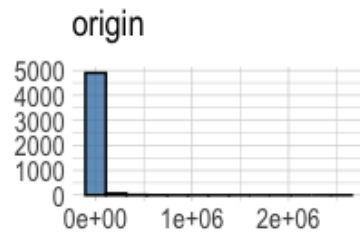
normality test : Shapiro-Wilk normality test

statistic : 0.09319, p-value : 1.50317E-93

skewness and kurtosis

type	skewness	kurtosis
original	21.5001454	598.203306
log+a transformation	0.5856276	2.436600
Box-Cox transformation	-1.1546547	2.355653

Normality Diagnosis Plot (x)



[new_cases_smoothed]

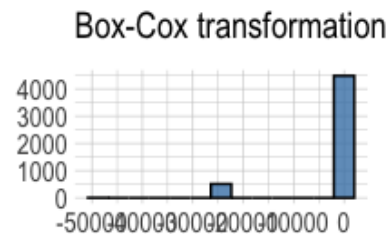
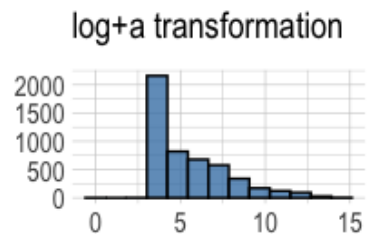
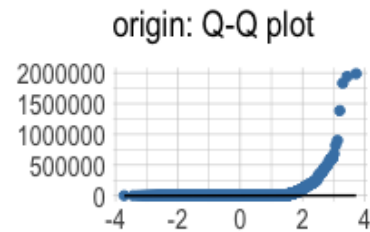
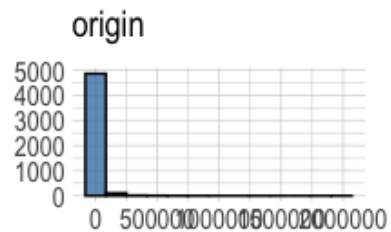
normality test : Shapiro-Wilk normality test

statistic : 0.11798, p-value : 6.6711E-93

skewness and kurtosis

type	skewness	kurtosis
original	18.269873	452.369624
log+a transformation	1.177228	3.788411
Box-Cox transformation	-2.692439	8.672069

Normality Diagnosis Plot (x)



[total_deaths]

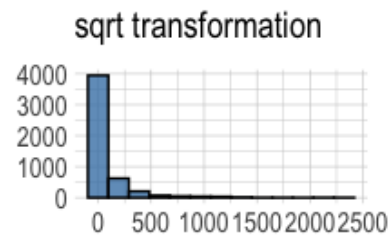
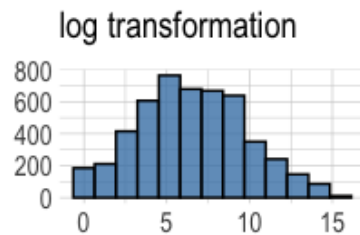
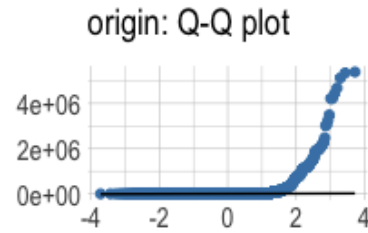
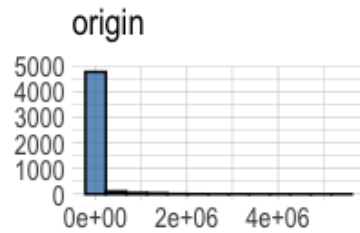
normality test : Shapiro-Wilk normality test

statistic : 0.18405, p-value : 4.27166E-91

skewness and kurtosis

type	skewness	kurtosis
original	10.547939	150.920013
log transformation	0.125313	2.583943
sqrt transformation	4.655215	30.826779

Normality Diagnosis Plot (x)



[new_deaths]

normality test : Shapiro-Wilk normality test

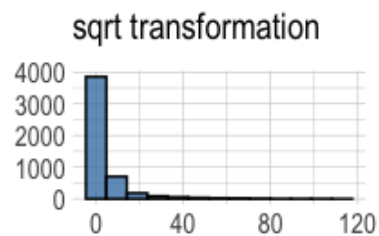
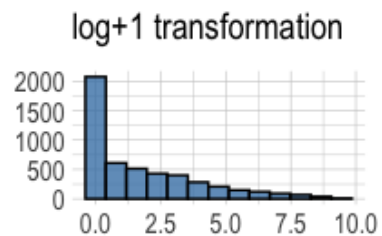
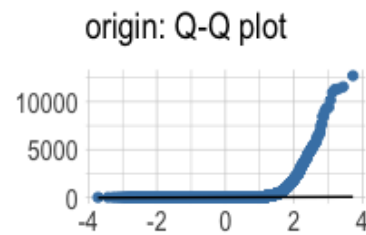
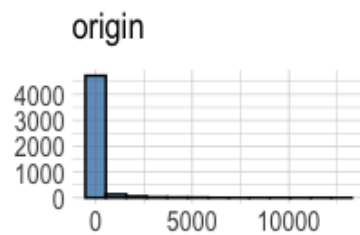
statistic : 0.19935, p-value : 1.16684E-90

skewness and kurtosis

type	skewness	kurtosis
original	8.759949	98.566976
log+1 transformation	1.236676	3.802345

type	skewness	kurtosis
sqrt transformation	4.437474	27.121178

Normality Diagnosis Plot (x)



[new_deaths_smoothed]

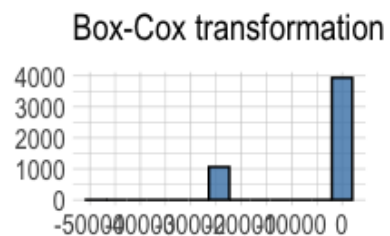
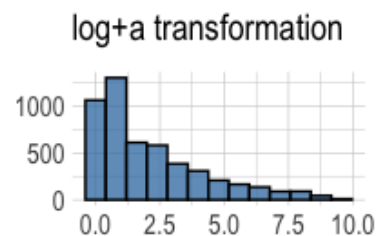
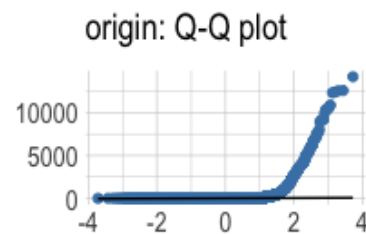
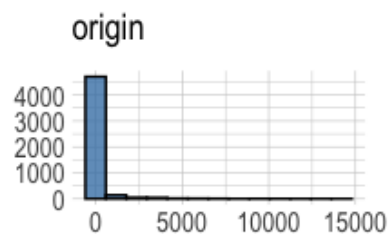
normality test : Shapiro-Wilk normality test

statistic : 0.21564, p-value : 3.46495E-90

skewness and kurtosis

type	skewness	kurtosis
original	7.935671	80.694164
log+a transformation	1.318387	4.041918
Box-Cox transformation	-1.419300	3.070339

Normality Diagnosis Plot (x)



[total_cases_per_million]

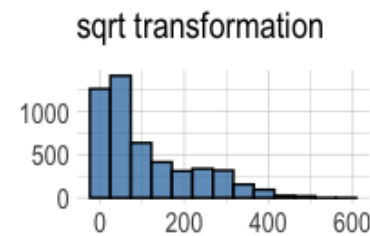
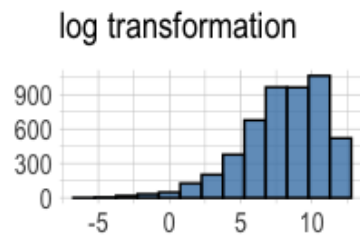
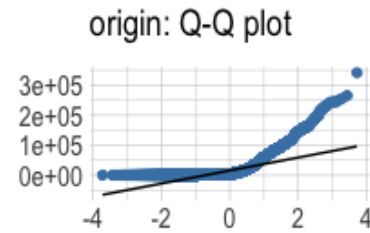
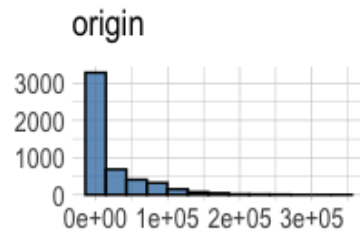
normality test : Shapiro-Wilk normality test

statistic : 0.66107, p-value : 5.7383E-72

skewness and kurtosis

type	skewness	kurtosis
original	2.3362260	9.392921
log transformation	-0.9176284	3.847003
sqrt transformation	1.1233290	3.357207

Normality Diagnosis Plot (x)



[new_cases_per_million]

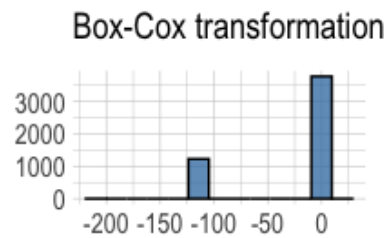
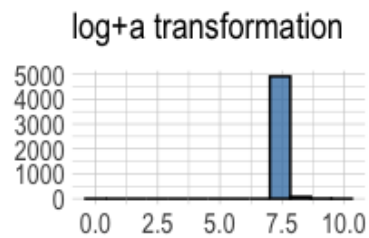
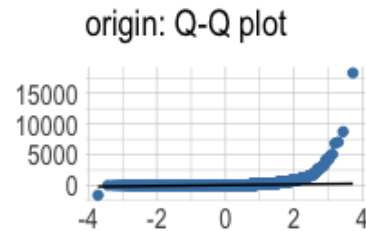
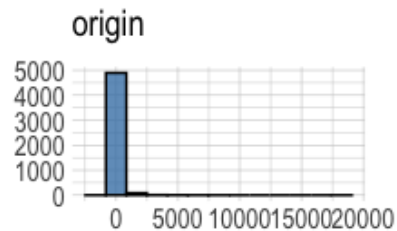
normality test : Shapiro-Wilk normality test

statistic : 0.22166, p-value : 5.20465E-90

skewness and kurtosis

type	skewness	kurtosis
original	21.450349	761.743374
log+a transformation	-14.586502	798.846702
Box-Cox transformation	-1.187518	2.467541

Normality Diagnosis Plot (x)



[new_cases_smoothed_per_million]

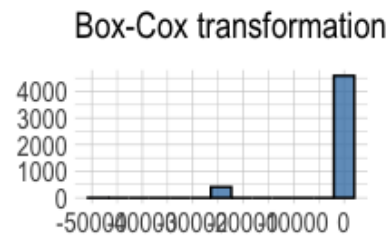
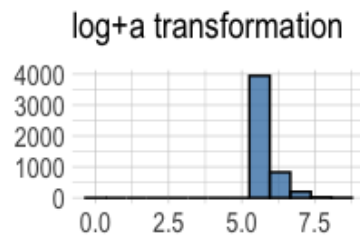
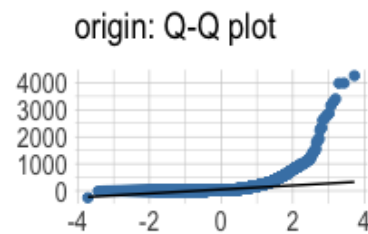
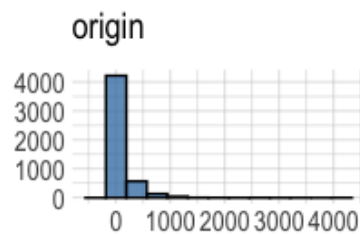
normality test : Shapiro-Wilk normality test

statistic : 0.42303, p-value : 2.82329E-83

skewness and kurtosis

type	skewness	kurtosis
original	6.874445	76.65122
log+a transformation	1.558738	19.09025
Box-Cox transformation	-3.116589	11.10632

Normality Diagnosis Plot (x)



[total_deaths_per_million]

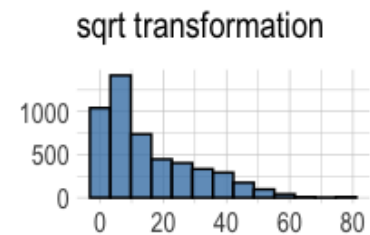
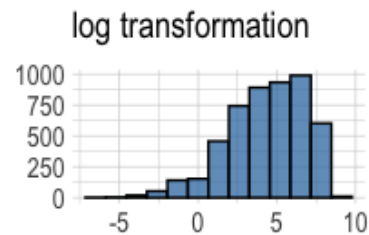
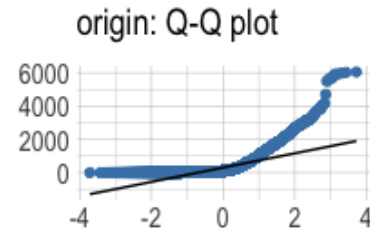
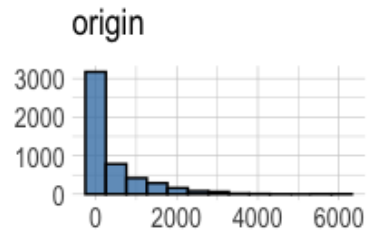
normality test : Shapiro-Wilk normality test

statistic : 0.66015, p-value : 5.05295E-72

skewness and kurtosis

type	skewness	kurtosis
original	2.5568316	11.780859
log transformation	-0.6807063	3.219998
sqrt transformation	1.1367274	3.569576

Normality Diagnosis Plot (x)



[new_deaths_per_million]

normality test : Shapiro-Wilk normality test

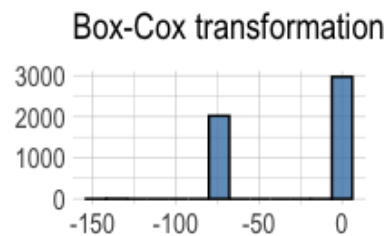
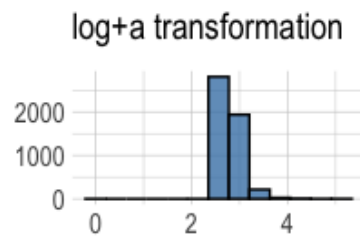
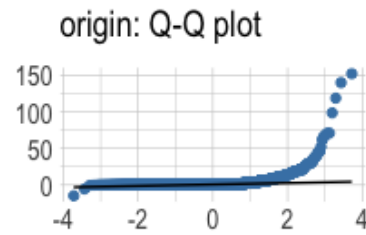
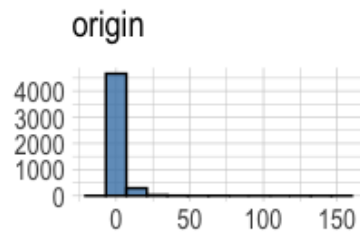
statistic : 0.30414, p-value : 1.85157E-87

skewness and kurtosis

type	skewness	kurtosis
original	12.1471088	239.534908
log+a transformation	3.2393011	38.538776

type	skewness	kurtosis
Box-Cox transformation	-0.4055143	1.249777

Normality Diagnosis Plot (x)



[new_deaths_smoothed_per_million]

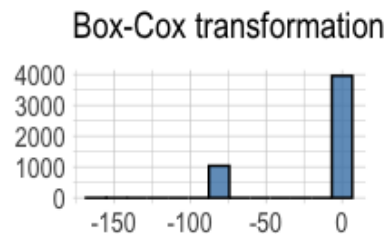
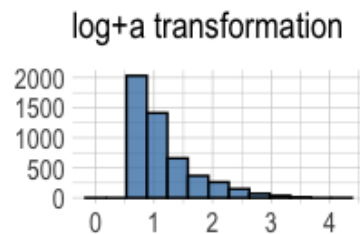
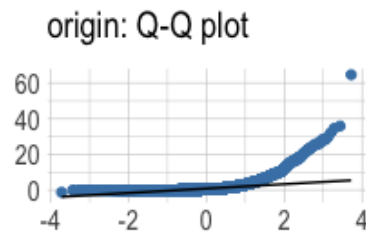
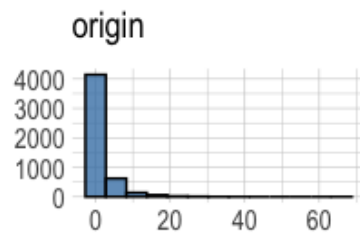
normality test : Shapiro-Wilk normality test

statistic : 0.50956, p-value : 9.86785E-80

skewness and kurtosis

type	skewness	kurtosis
original	4.753734	42.061385
log+a transformation	1.784204	5.955143
Box-Cox transformation	-1.440334	3.147464

Normality Diagnosis Plot (x)



[reproduction_rate]

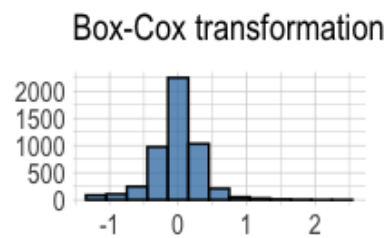
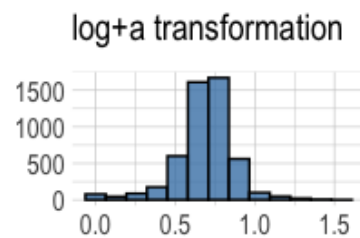
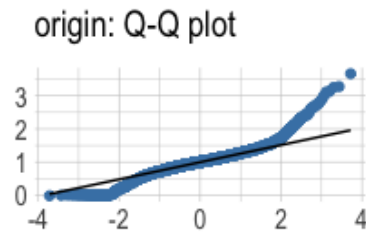
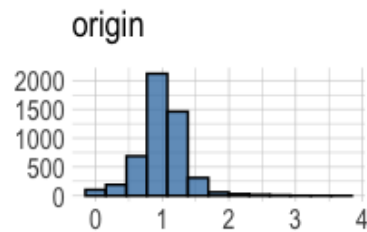
normality test : Shapiro-Wilk normality test

statistic : 0.9391, p-value : 3.13499E-41

skewness and kurtosis

type	skewness	kurtosis
original	0.5559591	7.507047
log+a transformation	-0.7807520	6.134848
Box-Cox transformation	-0.1993355	6.606645

Normality Diagnosis Plot (x)



[total_vaccinations]

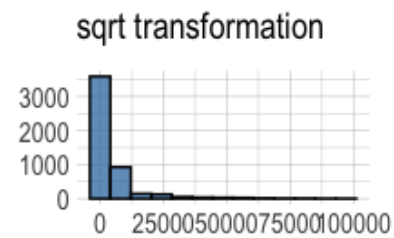
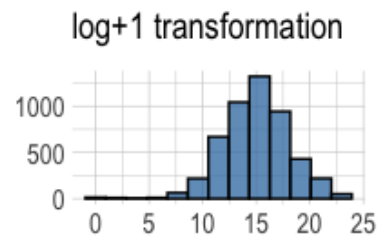
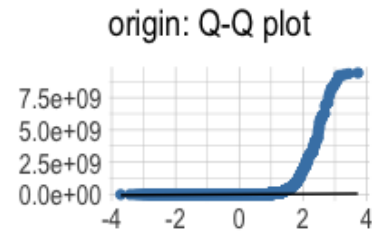
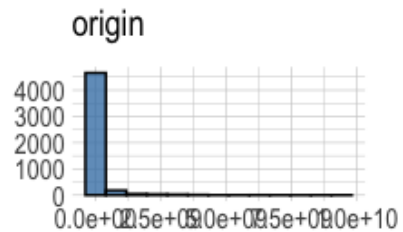
normality test : Shapiro-Wilk normality test

statistic : 0.21059, p-value : 2.46754E-90

skewness and kurtosis

type	skewness	kurtosis
original	7.9772385	78.17965
log+1 transformation	-0.4290611	4.54270
sqrt transformation	4.3521624	25.73389

Normality Diagnosis Plot (x)



[people_vaccinated]

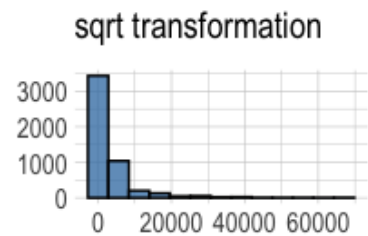
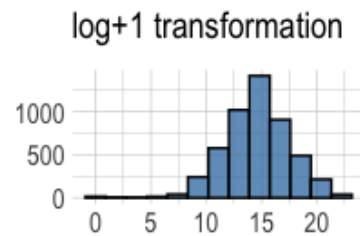
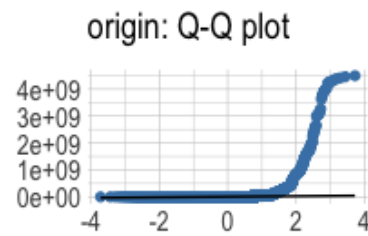
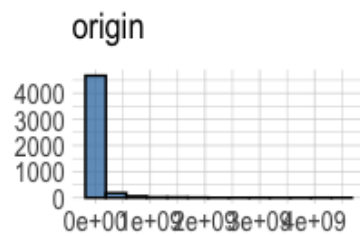
normality test : Shapiro-Wilk normality test

statistic : 0.20583, p-value : 1.7949E-90

skewness and kurtosis

type	skewness	kurtosis
original	8.5896049	90.191647
log+1 transformation	-0.5153286	4.799624
sqrt transformation	4.3734026	27.019827

Normality Diagnosis Plot (x)



[people_fully_vaccinated]

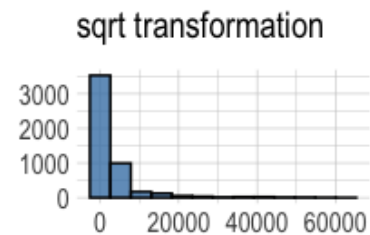
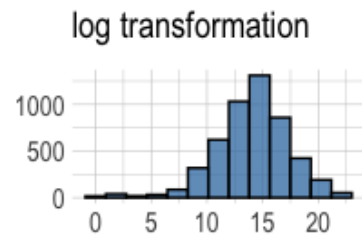
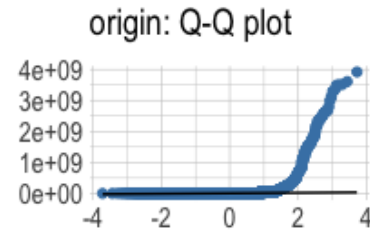
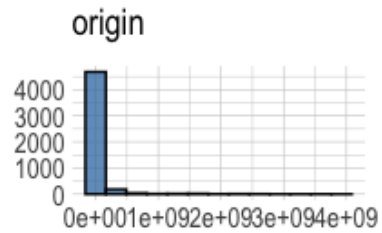
normality test : Shapiro-Wilk normality test

statistic : 0.20907, p-value : 2.22858E-90

skewness and kurtosis

type	skewness	kurtosis
original	7.835763	74.39567
log transformation	-0.710171	4.75885
sqrt transformation	4.387515	26.14616

Normality Diagnosis Plot (x)



[new_vaccinations]

normality test : Shapiro-Wilk normality test

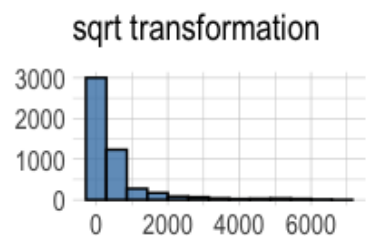
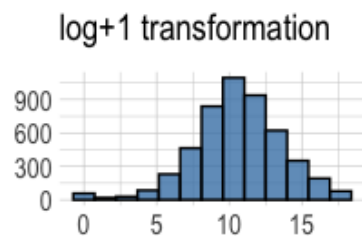
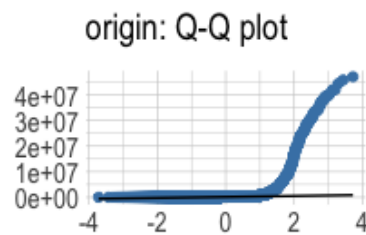
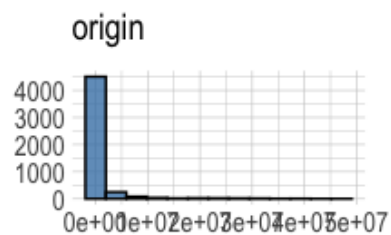
statistic : 0.28126, p-value : 3.42367E-88

skewness and kurtosis

type	skewness	kurtosis
original	5.777330	40.123940
log+1 transformation	-0.419317	3.944782

type	skewness	kurtosis
sqrt transformation	3.479333	16.567802

Normality Diagnosis Plot (x)



[new_vaccinations_smoothed]

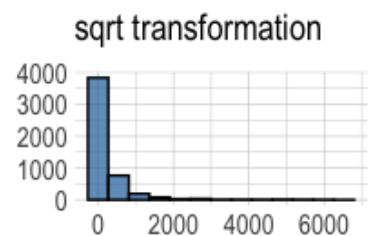
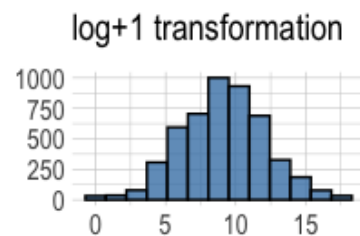
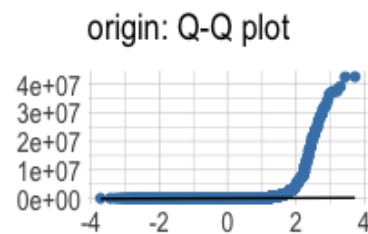
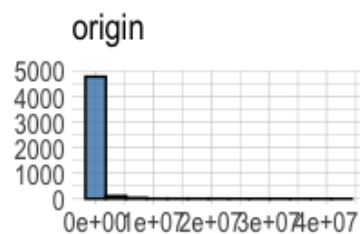
normality test : Shapiro-Wilk normality test

statistic : 0.16096, p-value : 9.66831E-92

skewness and kurtosis

type	skewness	kurtosis
original	9.478594	105.059462
log+1 transformation	-0.034329	3.065804
sqrt transformation	5.309347	37.664362

Normality Diagnosis Plot (x)



[total_vaccinations_per_hundred]

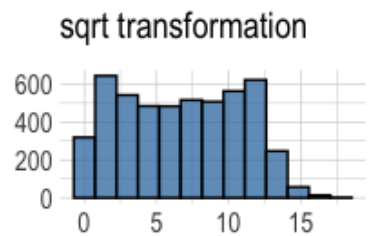
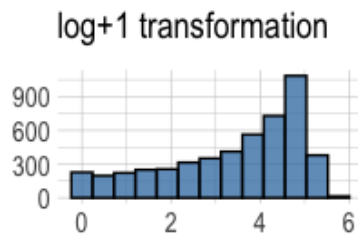
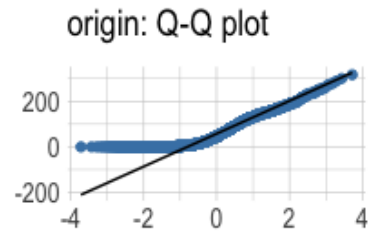
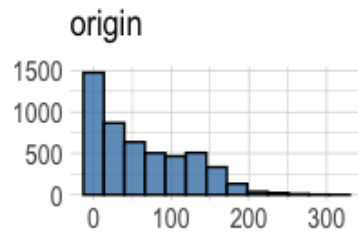
normality test : Shapiro-Wilk normality test

statistic : 0.89496, p-value : 4.84907E-50

skewness and kurtosis

type	skewness	kurtosis
original	0.7802288	2.735012
log+1 transformation	-0.7252622	2.351414
sqrt transformation	0.0530749	1.817014

Normality Diagnosis Plot (x)



[people_vaccinated_per_hundred]

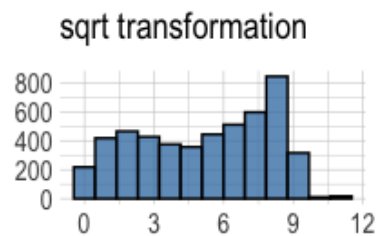
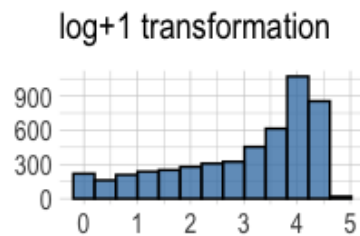
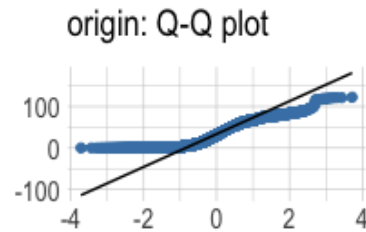
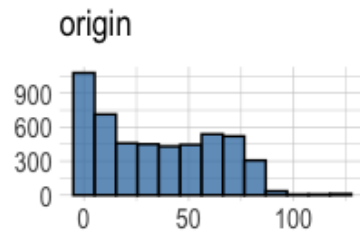
normality test : Shapiro-Wilk normality test

statistic : 0.91539, p-value : 1.93704E-46

skewness and kurtosis

type	skewness	kurtosis
original	0.3323068	1.863907
log+1 transformation	-0.8154111	2.433203
sqrt transformation	-0.2385332	1.753208

Normality Diagnosis Plot (x)



[people_fully_vaccinated_per_hundred]

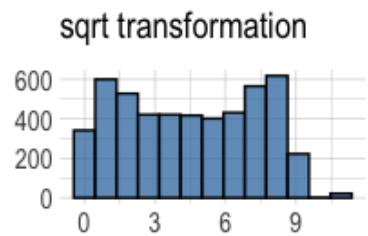
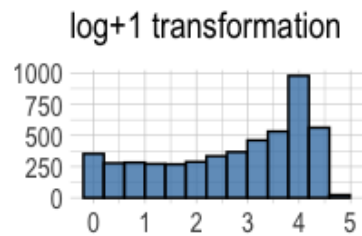
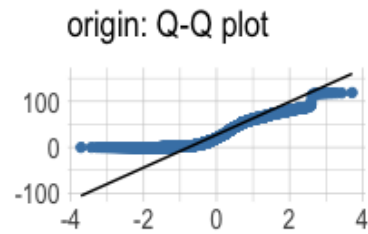
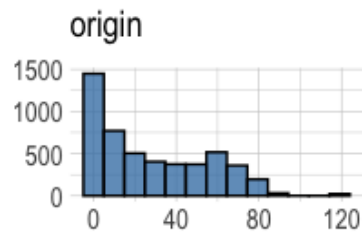
normality test : Shapiro-Wilk normality test

statistic : 0.88603, p-value : 1.95249E-51

skewness and kurtosis

type	skewness	kurtosis
original	0.6457988	2.292713
log+1 transformation	-0.5225729	1.926995
sqrt transformation	0.0197283	1.690675

Normality Diagnosis Plot (x)



[new_vaccinations_smoothed_per_million]

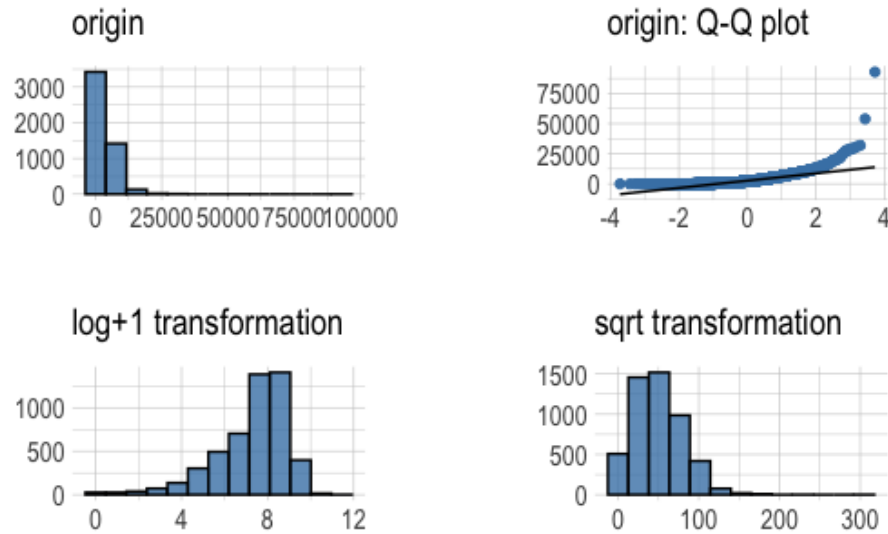
normality test : Shapiro-Wilk normality test

statistic : 0.72238, p-value : 6.06207E-68

skewness and kurtosis

type	skewness	kurtosis
original	4.616092	69.651484
log+1 transformation	-1.330831	5.270833
sqrt transformation	0.724619	4.342796

Normality Diagnosis Plot (x)



[new_people_vaccinated_smoothed]

normality test : Shapiro-Wilk normality test

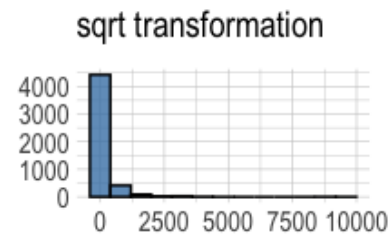
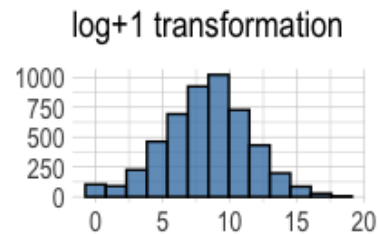
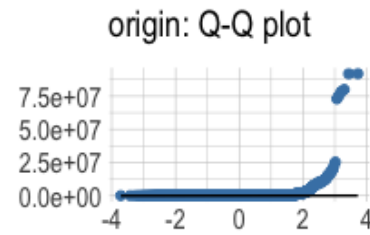
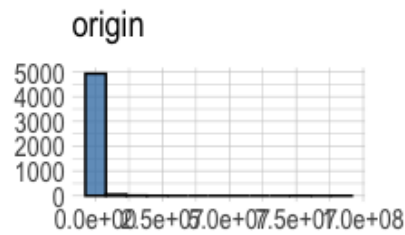
statistic : 0.06771, p-value : 3.36844E-94

skewness and kurtosis

type	skewness	kurtosis
original	23.1480471	611.85805
log+1 transformation	-0.1432778	3.07827

type	skewness	kurtosis
sqrt transformation	8.5564525	114.66318

Normality Diagnosis Plot (x)



[new_people_vaccinated_smoothed_per_hundred]

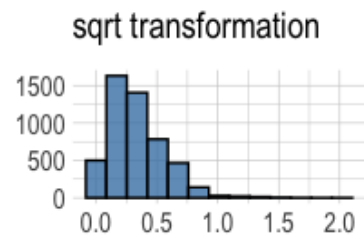
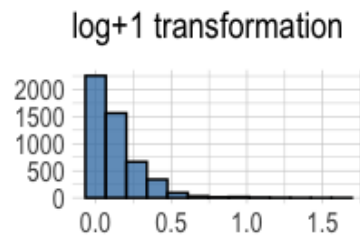
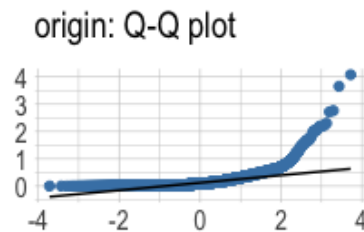
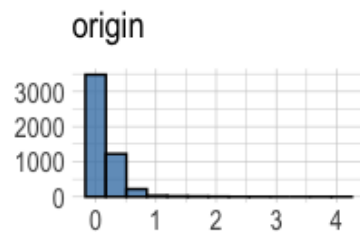
normality test : Shapiro-Wilk normality test

statistic : 0.60737, p-value : 5.21363E-75

skewness and kurtosis

type	skewness	kurtosis
original	4.936696	47.679648
log+1 transformation	2.508887	13.317555
sqrt transformation	1.260743	6.187054

Normality Diagnosis Plot (x)



[**stringency_index**]

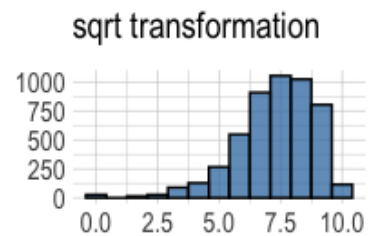
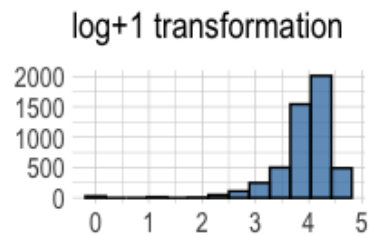
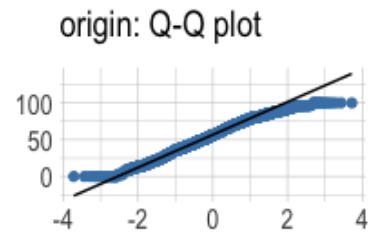
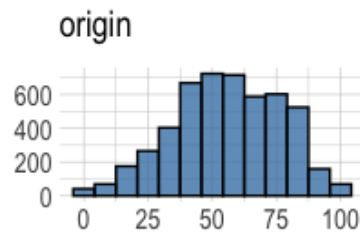
normality test : Shapiro-Wilk normality test

statistic : 0.98833, p-value : 6.3389E-20

skewness and kurtosis

type	skewness	kurtosis
original	-0.2328895	2.494154
log+1 transformation	-2.9469790	18.480764
sqrt transformation	-1.0804022	5.103928

Normality Diagnosis Plot (x)



[population]

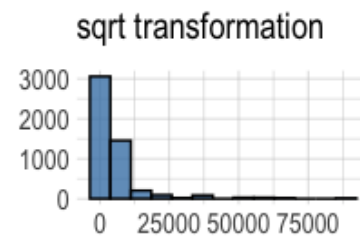
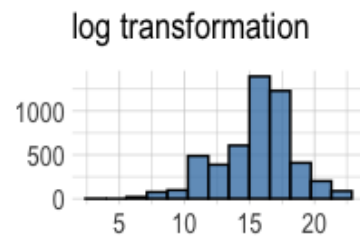
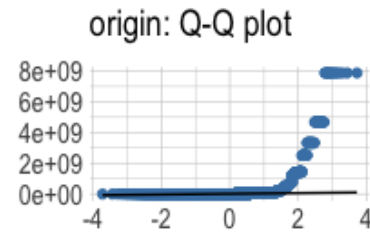
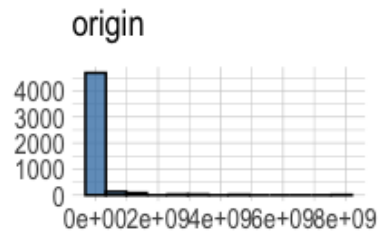
normality test : Shapiro-Wilk normality test

statistic : 0.2034, p-value : 1.52687E-90

skewness and kurtosis

type	skewness	kurtosis
original	8.4383831	88.577447
log transformation	-0.4394008	3.285516
sqrt transformation	4.5085394	27.968928

Normality Diagnosis Plot (x)



[population_density]

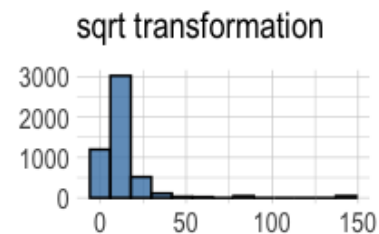
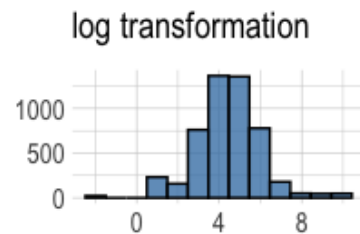
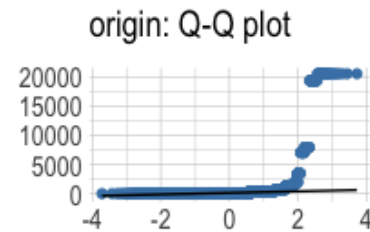
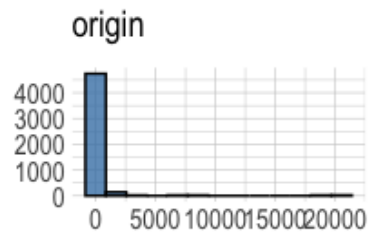
normality test : Shapiro-Wilk normality test

statistic : 0.17431, p-value : 2.27173E-91

skewness and kurtosis

type	skewness	kurtosis
original	8.3230370	75.563942
log transformation	0.0770812	5.064585
sqrt transformation	5.3954407	38.112589

Normality Diagnosis Plot (x)



[median_age]

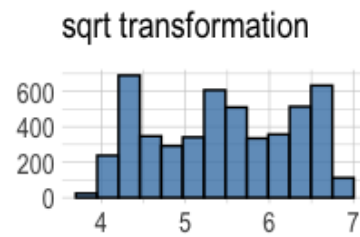
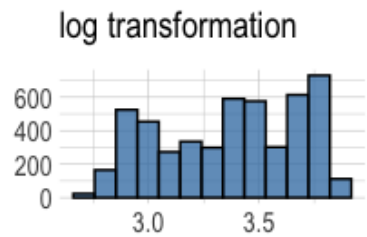
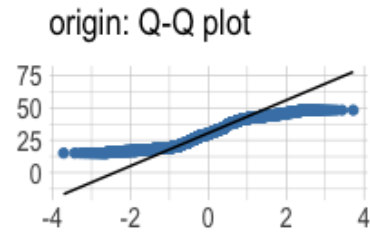
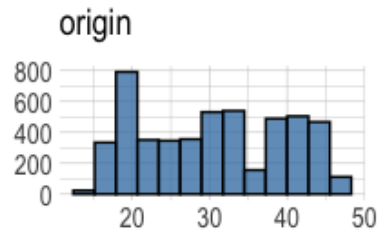
normality test : Shapiro-Wilk normality test

statistic : 0.94209, p-value : 1.83876E-40

skewness and kurtosis

type	skewness	kurtosis
original	0.1008134	1.733261
log transformation	-0.2377420	1.781690
sqrt transformation	-0.0669075	1.727109

Normality Diagnosis Plot (x)



[aged_65_older]

normality test : Shapiro-Wilk normality test

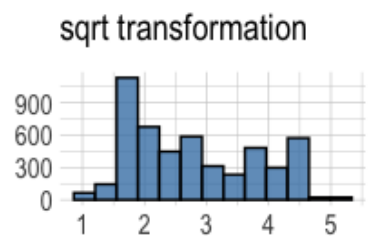
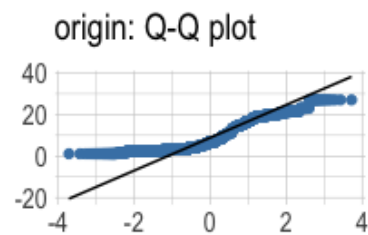
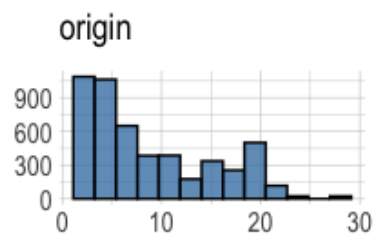
statistic : 0.87657, p-value : 8.08845E-53

skewness and kurtosis

type	skewness	kurtosis
original	0.7723137	2.324997
log transformation	0.0147145	1.854469

type	skewness	kurtosis
sqrt transformation	0.4271455	1.877391

Normality Diagnosis Plot (x)



[aged_70_older]

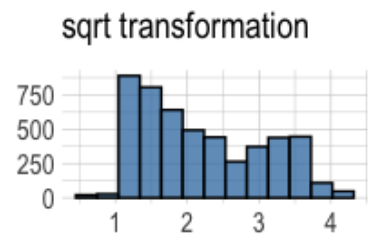
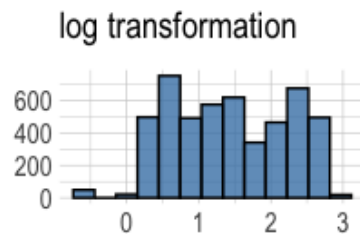
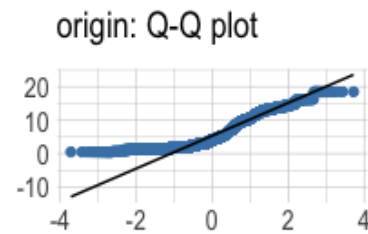
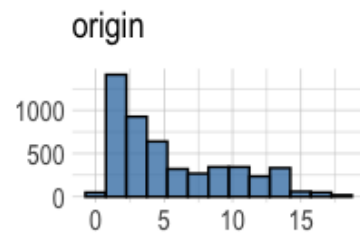
normality test : Shapiro-Wilk normality test

statistic : 0.86994, p-value : 9.78888E-54

skewness and kurtosis

type	skewness	kurtosis
original	0.8731058	2.573303
log transformation	0.0255400	1.900757
sqrt transformation	0.4850251	1.965464

Normality Diagnosis Plot (x)



[gdp_per_capita]

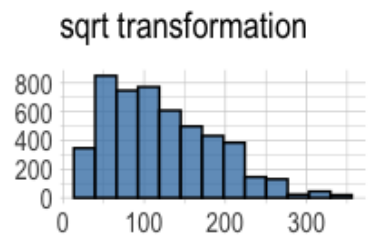
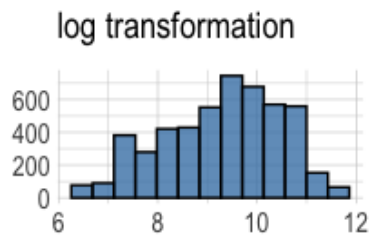
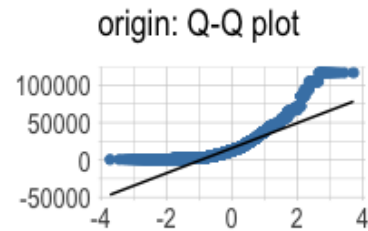
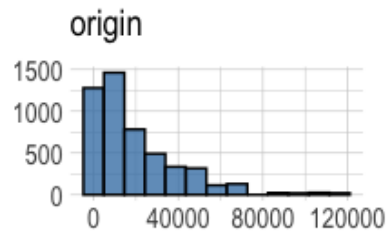
normality test : Shapiro-Wilk normality test

statistic : 0.81252, p-value : 2.25196E-60

skewness and kurtosis

type	skewness	kurtosis
original	1.8015571	7.028451
log transformation	-0.3384432	2.279436
sqrt transformation	0.6907760	2.955263

Normality Diagnosis Plot (x)



[**cardiovasc_death_rate**]

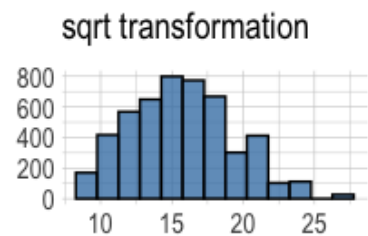
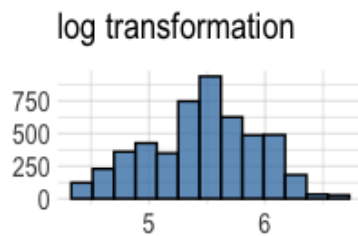
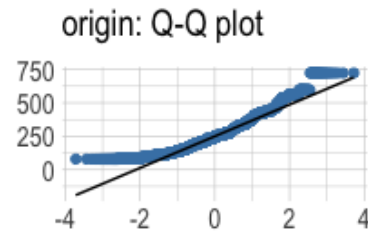
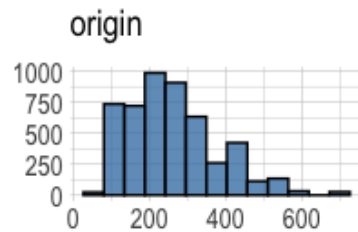
normality test : Shapiro-Wilk normality test

statistic : 0.94609, p-value : 2.2143E-39

skewness and kurtosis

type	skewness	kurtosis
original	0.8735078	3.760903
log transformation	-0.1899427	2.455411
sqrt transformation	0.3229896	2.701971

Normality Diagnosis Plot (x)



[diabetes_prevalence]

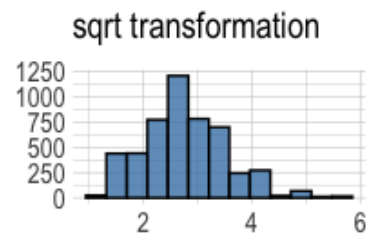
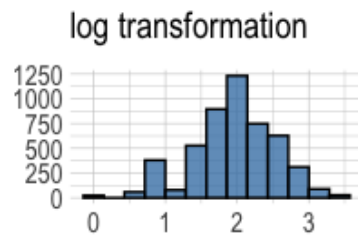
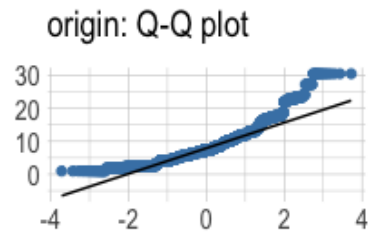
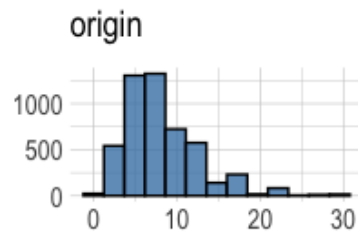
normality test : Shapiro-Wilk normality test

statistic : 0.90779, p-value : 7.42416E-48

skewness and kurtosis

type	skewness	kurtosis
original	1.3570655	5.844740
log transformation	-0.4057331	3.283058
sqrt transformation	0.4676200	3.433206

Normality Diagnosis Plot (x)



[handwashing_facilities]

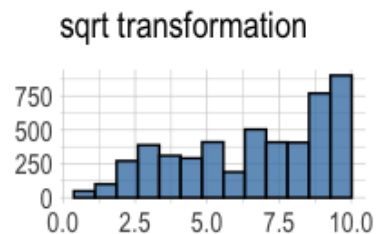
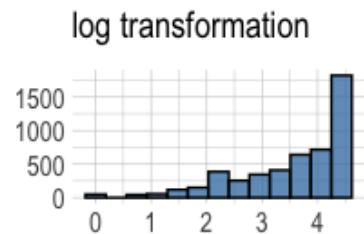
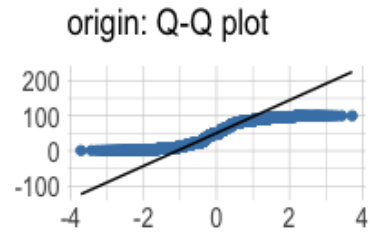
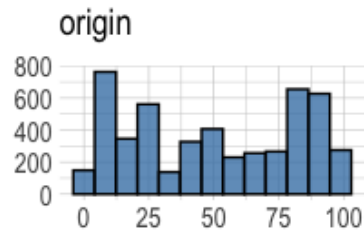
normality test : Shapiro-Wilk normality test

statistic : 0.9128, p-value : 6.21813E-47

skewness and kurtosis

type	skewness	kurtosis
original	-0.0253530	1.526873
log transformation	-1.1222279	3.603756
sqrt transformation	-0.4143191	1.847772

Normality Diagnosis Plot (x)



[hospital_beds_per_thousand]

normality test : Shapiro-Wilk normality test

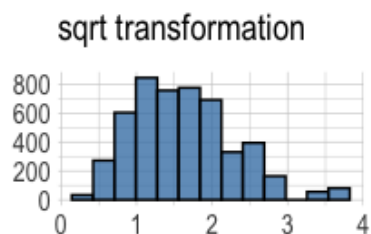
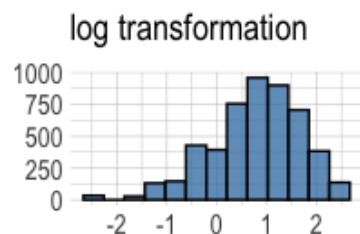
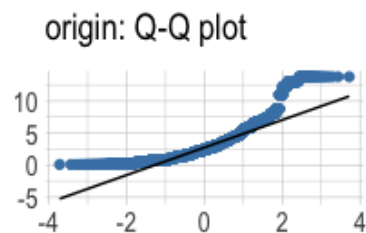
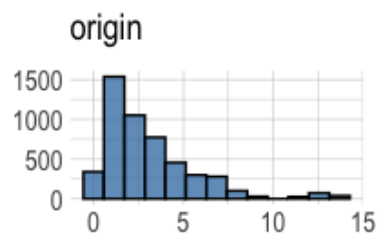
statistic : 0.83955, p-value : 1.6902E-57

skewness and kurtosis

type	skewness	kurtosis
original	1.7739876	7.007350
log transformation	-0.5351867	3.383814

type	skewness	kurtosis
sqrt transformation	0.6619630	3.390533

Normality Diagnosis Plot (x)



[life_expectancy]

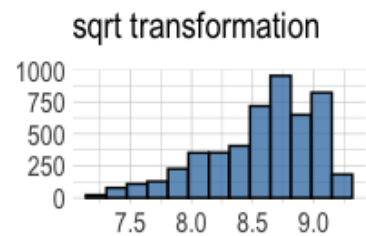
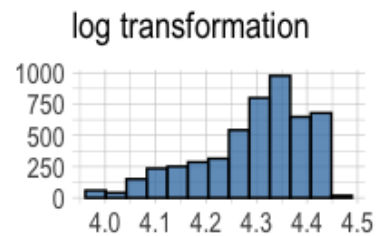
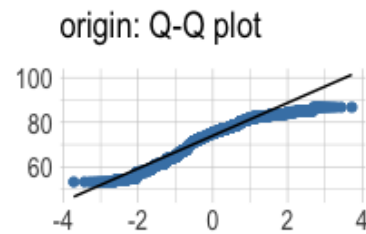
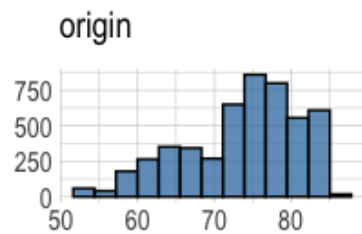
normality test : Shapiro-Wilk normality test

statistic : 0.95013, p-value : 3.17554E-38

skewness and kurtosis

type	skewness	kurtosis
original	-0.6488880	2.678022
log transformation	-0.8572738	3.089117
sqrt transformation	-0.7512739	2.865708

Normality Diagnosis Plot (x)



[human_development_index]

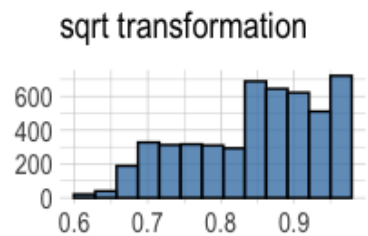
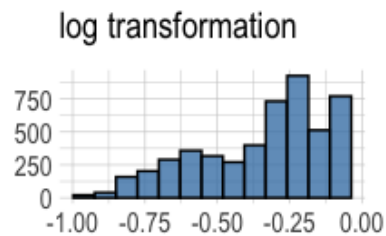
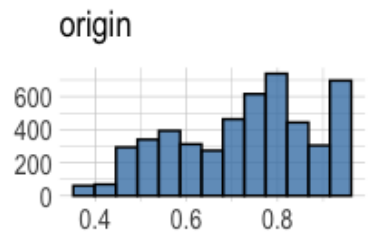
normality test : Shapiro-Wilk normality test

statistic : 0.95699, p-value : 4.51969E-36

skewness and kurtosis

type	skewness	kurtosis
original	-0.3201396	2.077903
log transformation	-0.6551345	2.489734
sqrt transformation	-0.4836804	2.242474

Normality Diagnosis Plot (x)



3 Relationship Between Variables

3.1 Correlation Coefficient

3.1.1 Correlation Coefficient by Variable Combination

Table of correlation coefficients (0.5 or more)

Variable1	Variable2	Correlation Coefficient
people_vaccinated	total_vaccinations	0.9956769
aged_70_older	aged_65_older	0.9943697
total_deaths	total_cases	0.9840076
people_fully_vaccinated_per_hundred	total_vaccinations_per_hundred	0.9809332
people_fully_vaccinated	total_vaccinations	0.9808898
new_vaccinations_smoothed	new_vaccinations	0.9793033
people_vaccinated_per_hundred	total_vaccinations_per_hundred	0.9779557
new_deaths_smoothed	new_deaths	0.9769511
new_cases_smoothed	new_cases	0.9754712
people_fully_vaccinated	people_vaccinated	0.9747883
people_fully_vaccinated_per_hundred	people_vaccinated_per_hundred	0.9607810
human_development_index	life_expectancy	0.9137820
aged_65_older	median_age	0.9129331
human_development_index	median_age	0.8989016
aged_70_older	median_age	0.8969339
new_vaccinations_smoothed	people_vaccinated	0.8713386

Variable1	Variable2	Correlation Coefficient
new_vaccinations_smoothed	total_vaccinations	0.8578479
people_vaccinated	total_cases	0.8486163
new_vaccinations	people_vaccinated	0.8485419
life_expectancy	median_age	0.8480346
human_development_index	handwashing_facilities	0.8358780
new_vaccinations	total_vaccinations	0.8355491
population	new_vaccinations_smoothed	0.8255179
new_vaccinations_smoothed	total_cases	0.8228023
total_vaccinations	total_cases	0.8205901
life_expectancy	handwashing_facilities	0.8172780
people_vaccinated	total_deaths	0.8168037
new_cases_smoothed	total_cases	0.8115976
new_deaths_smoothed	new_cases_smoothed	0.8112180
population	new_vaccinations	0.8107756
new_vaccinations_smoothed	total_deaths	0.8074995
people_fully_vaccinated	total_cases	0.8056243
new_vaccinations	total_cases	0.8006668
new_deaths	new_cases_smoothed	0.7991156
new_deaths_smoothed	total_deaths	0.7934481

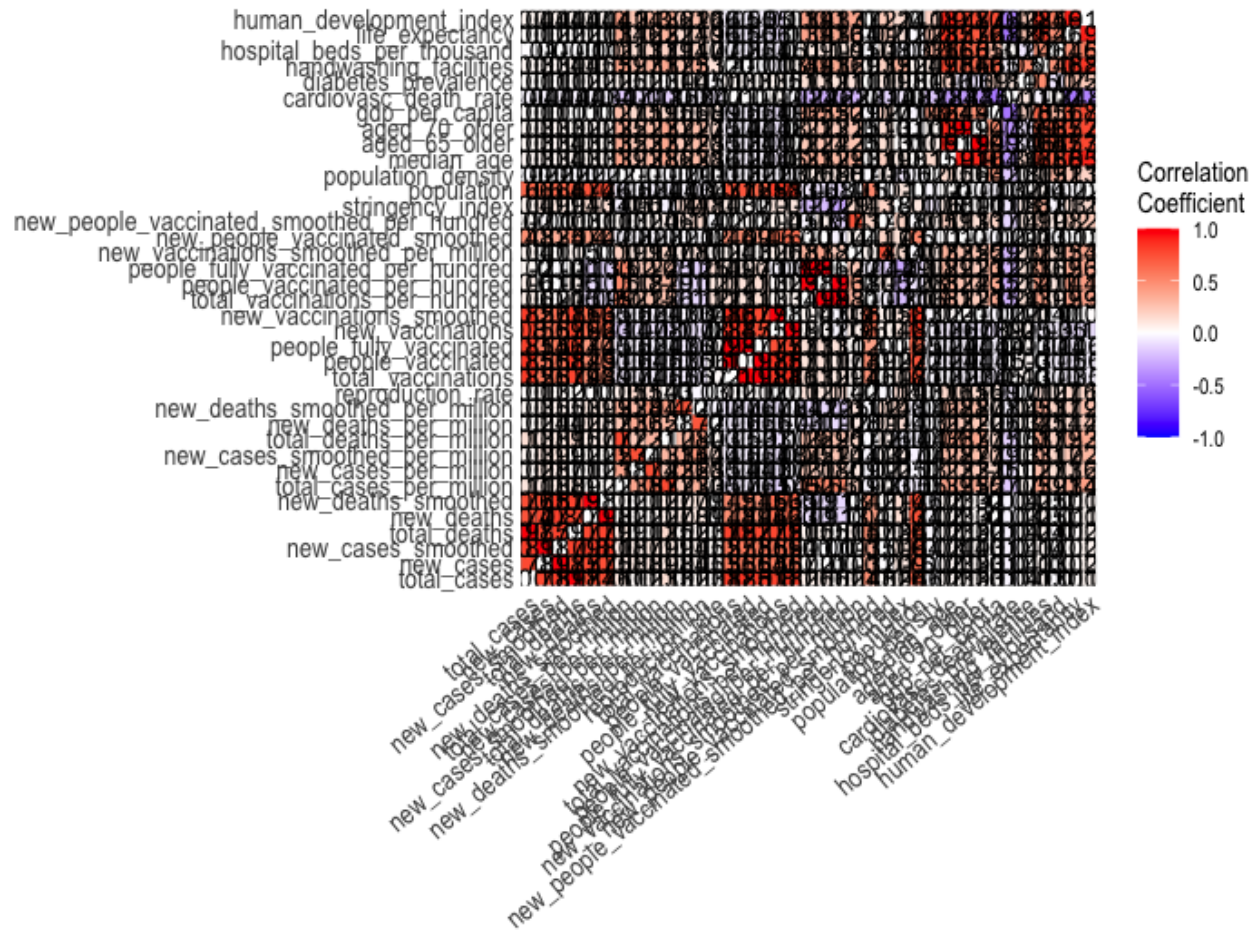
Variable1	Variable2	Correlation Coefficient
total_deaths	new_cases_smoothed	0.7920607
total_vaccinations	total_deaths	0.7912097
new_vaccinations	total_deaths	0.7854311
handwashing_facilities	median_age	0.7840391
human_development_index	aged_65_older	0.7805423
new_cases	total_cases	0.7780545
people_fully_vaccinated	total_deaths	0.7743326
total_deaths_per_million	total_cases_per_million	0.7734279
new_deaths	total_deaths	0.7720047
new_vaccinations_smoothed	people_fully_vaccinated	0.7699070
human_development_index	aged_70_older	0.7683300
new_deaths	new_cases	0.7653217
population	new_deaths_smoothed	0.7558692
new_deaths_smoothed	total_cases	0.7555357
human_development_index	gdp_per_capita	0.7550212
total_deaths	new_cases	0.7549565
new_deaths_smoothed	new_cases	0.7535491
new_vaccinations	people_fully_vaccinated	0.7486139
new_cases_smoothed_per_million	new_cases_per_million	0.7448274

Variable1	Variable2	Correlation Coefficient
population	new_deaths	0.7374172
new_deaths	total_cases	0.7353445
new_people_vaccinated_smoothed_per_hundred	new_vaccinations_smoothed_per_million	0.7307020
life_expectancy	aged_65_older	0.7299344
population	people_vaccinated	0.7214932
new_deaths_smoothed_per_million	new_deaths_per_million	0.7190120
life_expectancy	aged_70_older	0.7155852
population	total_vaccinations	0.7109711
life_expectancy	gdp_per_capita	0.6827875
population	total_deaths	0.6706378
hospital_beds_per_thousand	median_age	0.6584222
population	total_cases	0.6570763
handwashing_facilities	gdp_per_capita	0.6509992
new_vaccinations_smoothed	new_deaths_smoothed	0.6499103
population	people_fully_vaccinated	0.6497028
hospital_beds_per_thousand	aged_70_older	0.6480268
hospital_beds_per_thousand	aged_65_older	0.6472392
population	new_cases_smoothed	0.6387164
gdp_per_capita	median_age	0.6386313

Variable1	Variable2	Correlation Coefficient
handwashing_facilities	aged_65_older	0.6371789
handwashing_facilities	aged_70_older	0.6330141
new_vaccinations_smoothed	new_deaths	0.6312790
new_vaccinations	new_deaths_smoothed	0.6310287
new_vaccinations	new_deaths	0.6231420
new_people_vaccinated_smoothed	new_vaccinations_smoothed	0.6113476
new_vaccinations_smoothed	new_cases_smoothed	0.6085511
population	new_cases	0.5978451
new_people_vaccinated_smoothed	new_vaccinations	0.5964137
new_vaccinations	new_cases_smoothed	0.5878084
people_vaccinated	new_cases_smoothed	0.5752890
new_vaccinations_smoothed	new_cases	0.5730029
total_vaccinations	new_cases_smoothed	0.5722213
new_vaccinations	new_cases	0.5624827
human_development_index	hospital_beds_per_thousand	0.5586406
people_vaccinated	new_cases	0.5557274
people_fully_vaccinated	new_cases_smoothed	0.5555384
total_vaccinations	new_cases	0.5553572
people_fully_vaccinated	new_cases	0.5421936

Variable1	Variable2	Correlation Coefficient
new_cases_smoothed_per_million	total_cases_per_million	0.5274451
total_vaccinations_per_hundred	total_cases_per_million	0.5152292
people_vaccinated	new_deaths_smoothed	0.5076970
people_fully_vaccinated_per_hundred	total_cases_per_million	0.5034343
population	new_people_vaccinated_smoothed	0.5027496
people_vaccinated_per_hundred	total_cases_per_million	0.5014334

3.1.2 Correlation Plot of Numerical Variables



4 Target based Analysis

4.1 Grouped Descriptive Statistics

4.1.1 Grouped Numerical Variables

There is no target variable.

4.1.2 Grouped Categorical Variables

There is no target variable.

4.2 Grouped Relationship Between Variables

4.2.1 Grouped Correlation Coefficient

There is no target variable.

4.2.2 Grouped Correlation Plot of Numerical Variables

There is no target variable.