

1 **Appendix**
2 *Table A. 1: Entry Number, References, Dates of Publication, Place of Publications and Countries Covered of African COVID-19 transmission modelling studies reviewed*

Entry_Number	References	Date_of_Publication	Place_of_Publication	Countries_Covered
A1	[42]	2020/03/25	Journal of Contemporary Studies in Epidemiology and Public Health	Algeria
A2	[43]	2020/12/02	The Pan African medical journal	Nigeria
M1	[18]	2020/10/05	medRxiv	Afghanistan, Angola, United States, Canada, Brazil, France, Sweden, United Kingdom, Italy, Turkey, Hong Kong, India, Singapore
M10	[27]	2020/06/05	medRxiv	Algeria, Cameroon, Ethiopia, Nigeria
M11	[44]	2020/10/07	medRxiv	Malawi
M12	[45]	2020/08/23	medRxiv	Algeria
M13	[25]	2020/09/02	medRxiv	Niger
M14	[46]	2020/04/16	medRxiv	Kenya
M15	[47]	2020/08/31	medRxiv	South Africa
M16	[48]	2020/11/03	medRxiv	South Africa
M17	[49]	2020/08/26	medRxiv	Ethiopia, South Africa
M18	[50]	2020/04/07	medRxiv	Algeria, Burkina Faso, Egypt, Morocco, Senegal, South Africa, Tunisia
M2	[51]	2020/07/20	medRxiv	Madagascar
M20	[52]	2020/08/12	medRxiv	South Africa
M21	[53]	2020/06/24	medRxiv	Ethiopia
M23	[32]	2020/08/22	medRxiv	Egypt, Qatar, Saudi Arabia
M25	[54]	2020/09/03	medRxiv	Kenya
M26	[55]	2020/11/18	medRxiv	Ethiopia
M27	[56]	2020/05/21	PLOS ONE	Cameroon
M28	[57]	2020/05/20	medRxiv	Nigeria
M29	[58]	2020/05/11	medRxiv	Uganda
M3	[59]	2020/04/25	medRxiv	South Africa
M30	[60]	2020/05/03	BMC Medicine	Mauritius, Niger, Nigeria
M31	[61]	2020/10/12	medRxiv	Central African Republic, Egypt, Kenya, Madagascar, Malawi, South Africa
M32	[62]	2020/04/22	medRxiv	South Africa, US, Canada, Europe, Asian Countries
M33	[63]	2020/07/04	medRxiv	Senegal
M34	[64]	2020/04/30	medRxiv	South Africa
M37	[65]	2020/08/14	medRxiv	Liberia
M39	[66]	2020/05/05	medRxiv	Africa, Americas, Asia, Europe, Oceania
M4	[33]	2020/09/19	medRxiv	Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo
M41	[31]	2020/05/05	medRxiv	Egypt
M43	[67]	2020/08/01	medRxiv	Algeria
M45	[68]	2020/05/29	medRxiv	Kenya
M5	[69]	2020/05/12	medRxiv	Ghana, Kenya, Senegal
M6	[70]	2020/07/25	medRxiv	England, South Africa
M7	[71]	2020/11/18	medRxiv	Algeria, Angola, Benin, Botswana, Burkina Faso, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo (Kinshasa), Cote d'Ivoire, Equatorial Guinea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, South Africa, South Sudan, Tanzania, Togo, Uganda, Zambia, Zimbabwe
M8	[72]	2020/07/25	medRxiv	Africa, Americas, Europe
M9	[73]	2020/12/16	medRxiv	Democratic Republic of the Congo
O1	[30]	2021/03/08	BMJ Open	Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Congo (Brazzaville), Congo (Kinshasa), Cote d'Ivoire, Djibouti, Egypt, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Libya, Madagascar, Malawi, Mali,

				Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Tanzania, Togo, Tunisia, Uganda, Zambia, Zimbabwe
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4 *Table A. 1: Continued...*

Entry_Number	References	Date_of_Publication	Place_of_Publication	Countries_Covered
P15	[74]	2020/08/04	Mathematical Biosciences	South Africa
P18	[60]	2020/10/14	BMC Medicine	Niger, Nigeria, Mauritius
P2	[75]	2020/05/05	BMJ Global Health	Ghana, Kenya, Senegal
P20	[76]	2020/05/06	The Lancet Infectious Diseases	Democratic Republic of the Congo
P24	[77]	2020/04/25	Science of the Total Environment	Algeria, Egypt, Kenya, Nigeria, Senegal, South Africa

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6 *Table A. 2: Entry Number, Type of Model, Time Period of Simulation (Days), Model Seeding Period (Days), Model Seeding COVID-19 Active Cases and Seeding Last Data Point Sensitivity (%) for Studies Reviewed.*

Entry_Number	Type_of_Model	Time_Period_of_Simulation (Days)	Model Seeding Period (Days)	Model_Seeding_Active_Cases	Seeding_Last Data Point Sensitivity (%)
A1	The Reed Frost Model	46	26	119	8.40E-01
A2	COVID-19 Resource Estimator (CORE) Model				
M1	Mobility-Augmented SEIR (MA-SEIR)				
M10	SIR Model				
M11	SIR Model	365			
M12	SEIRD model		122	8739	1.14E-02
M13	The Reed Frost Model				
M14	SEIR model				
M15	SEIR Model				
M16	SEAIHCRD model				
M17	SEIR Model		201, 209	42966,49493	2.33E-03, 2.02E-03
M18	ODE with transimiision rate	11	56	38	2.63E+00
M20	The Reed Frost Model				
M21	SEIR Model				
M23	Generalized SEIR via Nelder mead algorithm		112	36948	2.71E-03
M25	Heterogenous SEIR Model with an effective population size parameter Peff	167	167	13568	7.37E-03
M26	Modified SEIR Model	209	209	44101	2.27E-03
M27	SIR model and the Nelder Mead and Maximum Likelihood Optimization Algorithm	35	35	710	1.41E-01
M28	SIER model	70	59	994	1.01E-01
M29	SIER model				
M3	SEIR model		19	550, 1835	1.82E-01, 5.45E-02
M30	SEIR model, stratified by age and disease status		91	8, 194, 1952	1.25E+01, 5.15E-01, 5.12E-02,
M31	The Reed Frost Model		190	966-57803	1.73E-03-1.04E-01
M32	Extreme Value Distributions	68	68	1292	7.74E-02
M33	SEIR Model (Age structured)		29	1455	6.87E-02
M34	SIR and SEIR	50			
M37	Stratified stochastic compartmental SEIR model				
M4	SEIR Model	287-314	139-166	17-12844	7.79E-03-5.88E+00
M41	SIR and SEIR		47	1993	5.02E-02
M43	SIR Model and Statistical Growth Model		59	1304	7.67E-02
M45	SEIR				
M5	SEIR Model		15, 23, 22	134, 148, 78	7.46E-01, 6.76E-01, 1.28E+00

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M6	SEIR Model				
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8 *Table A. 2: Continued...*

Entry_Number	Type_of_Model	Time_Period_of_Simulation (Days)	Model Seeding Period (Days)	Model_Seeding_Active_Cases	Seeding_Last Data Point Sensitivity (%)
M7	SEIR model				
M8	SEIR Model				
M9	SEIR Model				
O1	Modified SEIR	200	80-132	5-56109	1.78E-03-2.00E+01
P15	Modified SEIR (SEAIJRP) model	700	100	71121	1.41E-03
P18	SEIR model	366			
P2	Augmented Deterministic SIR Model	200			
P20	SEICR	100			
P24	Modified SEIR model with quarantine and intervention measures		21-49	140-1401	7.14E-02-7.14E-01

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28 Table A. 3: Statistical Sample Number (N), Range, Minimum, Maximum, Mean, Standard Deviation (Std Deviation) of Daily COVID-19 Tests, COVID-19 Tests per Population, COVID-19
 29 Positivity Rate (%) in respective African countries for the period from first reported COVID-19 case to 31 December 2020 (Descriptive Statistics)

Country	Parameters	N	Minimum	Maximum	Mean	Std. Deviation
Botswana	Daily COVID-19 Test	34	89	2596	560	454
	Daily COVID-19 Tests per Population	34	3.80E-05	1.10E-03	2.38E-04	1.93E-04
	Daily COVID-19 Positivity Rate (%)	34	0.00E+00	1	0.065	0.164
Cape Verde	Daily COVID-19 Test	213	49	767	353	158
	Daily COVID-19 Tests per Population	213	8.90E-05	1.38E-03	6.35E-04	2.84E-04
	Daily COVID-19 Positivity Rate (%)	213	0	77	16	11
Cote d'Ivoire	Daily COVID-19 Test	249	79	2216	959	484
	Daily COVID-19 Tests per Population	249	3.00E-06	8.40E-05	3.64E-05	1.84E-05
	Daily COVID-19 Positivity Rate (%)	249	-3	42	9	8
Democratic Republic of Congo	Daily COVID-19 Test	235	0	1164	346	207
	Daily COVID-19 Tests per Population	235	0.00E+00	1.30E-05	3.86E-06	2.32E-06
	Daily COVID-19 Positivity Rate (%)	234	0	83	19	16
Ethiopia	Daily COVID-19 Test	276	115	24487	6341	5159
	Daily COVID-19 Tests per Population	276	1.00E-06	2.13E-04	5.52E-05	4.49E-05
	Daily COVID-19 Positivity Rate (%)	276	0	23	6	4
Ghana	Daily COVID-19 Test	222	186	12460	2343	1680
	Daily COVID-19 Tests per Population	222	6.00E-06	4.01E-04	7.54E-05	5.41E-05
	Daily COVID-19 Positivity Rate (%)	222	0	70	10	12
Kenya	Daily COVID-19 Test	176	0	18981	3178	2237
	Daily COVID-19 Tests per Population	176	0.00E+00	3.53E-04	5.91E-05	4.16E-05
	Daily COVID-19 Positivity Rate (%)	175	0	21	7	4
Libya	Daily COVID-19 Test	240	0	7600	1800	1757
	Daily COVID-19 Tests per Population	240	0.00E+00	1.11E-03	2.62E-04	2.56E-04
	Daily COVID-19 Positivity Rate (%)	234	0	65	11	11

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Madagascar	Daily COVID-19 Test	65	28	969	434	207
	Daily COVID-19 Tests per Population	65	1.00E-06	3.50E-05	1.57E-05	7.46E-06
	Daily COVID-19 Positivity Rate (%)	65	-1	65	18	13
Malawi	Daily COVID-19 Test	187	0	1951	296	262
	Daily COVID-19 Tests per Population	187	0.00E+00	1.02E-04	1.55E-05	1.37E-05
	Daily COVID-19 Positivity Rate (%)	178	0	60	9	12
Mauritania	Daily COVID-19 Test	66	0	1042	318	271
	Daily COVID-19 Tests per Population	66	0.00E+00	2.24E-04	6.84E-05	5.83E-05
	Daily COVID-19 Positivity Rate (%)	65	0	129	9	17
Morocco	Daily COVID-19 Test	298	0	24878	14476	8585
	Daily COVID-19 Tests per Population	298	0.00E+00	6.74E-04	3.92E-04	2.33E-04
	Daily COVID-19 Positivity Rate (%)	286	0	41	11	9
Mozambique	Daily COVID-19 Test	271	0	5751	953	674
	Daily COVID-19 Tests per Population	271	0.00E+00	1.84E-04	3.05E-05	2.16E-05
	Daily COVID-19 Positivity Rate (%)	266	0	32	6	5
Namibia	Daily COVID-19 Test	215	15	2729	903	594
	Daily COVID-19 Tests per Population	215	6.00E-06	1.07E-03	3.55E-04	2.34E-04
	Daily COVID-19 Positivity Rate (%)	215	0	117	11	14
Nigeria	Daily COVID-19 Test	143	412	28860	3419	3160
	Daily COVID-19 Tests per Population	143	2.00E-06	1.40E-04	1.66E-05	1.53E-05
	Daily COVID-19 Positivity Rate (%)	143	0	123	15	13
Rwanda	Daily COVID-19 Test	235	376	6865	2592	1442
	Daily COVID-19 Tests per Population	235	2.90E-05	5.30E-04	2.00E-04	1.11E-04
	Daily COVID-19 Positivity Rate (%)	235	0	7	1	1
Senegal	Daily COVID-19 Test	303	0	2110	888	444
	Daily COVID-19 Tests per Population	303	0.00E+00	1.26E-04	5.30E-05	2.65E-05
	Daily COVID-19 Positivity Rate (%)	292	0	36	7	5

33 Table A. 3: Continued...

South Africa	Daily COVID-19 Test	287	0	55987	22112	13345
	Daily COVID-19 Tests per Population	287	0.00E+00	9.44E-04	3.73E-04	2.25E-04
	Daily COVID-19 Positivity Rate (%)	284	0	34	12	8
Togo	Daily COVID-19 Test	296	0	1772	588	377
	Daily COVID-19 Tests per Population	296	0.00E+00	2.14E-04	7.11E-05	4.55E-05
	Daily COVID-19 Positivity Rate (%)	288	0	48	2	4
Uganda	Daily COVID-19 Test	147	0	7959	2765	1307
	Daily COVID-19 Tests per Population	147	0.00E+00	1.74E-04	6.04E-05	2.86E-05
	Daily COVID-19 Positivity Rate (%)	146	0	46	7	7
Zambia	Daily COVID-19 Test	252	18	14578	2177	2222
	Daily COVID-19 Tests per Population	252	1.00E-06	7.93E-04	1.18E-04	1.21E-04
	Daily COVID-19 Positivity Rate (%)	252	0	111	7	11
Zimbabwe	Daily COVID-19 Test	232	89	4979	872	556
	Daily COVID-19 Tests per Population	232	6.00E-06	3.35E-04	5.87E-05	3.74E-05
	Daily COVID-19 Positivity Rate (%)	232	0	111	7	10

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44 Table A. 4: Pearson and Spearman's Correlation Coefficients and P-Values (Sig. (2-tailed)) between COVID-19 Daily Tests (Independent Variable) and COVID-19 Daily Confirmed Cases (a.
45 Dependent Variable) for the period between the first COVID-19 reported case and the 31st of December 2020 in African countries (Correlations)

Country	N ^a	Pearson Correlation ^a	Sig. (2-tailed) ^a	Spearman's rho Correlation ^a	Sig. (2-tailed) ^a
Botswana	34	0.015	0.931	0.175	0.322
Cape Verde	213	0.55	<0.01	0.595	<0.01
Cote d'Ivoire	249	0.43	<0.01	0.396	<0.01
Democratic Republic of Congo	235	0.486	<0.01	0.585	<0.01
Ethiopia	276	0.885	<0.01	0.887	<0.01
Ghana	222	0.162	0.016	0.313	<0.01
Kenya	176	0.751	<0.01	0.9	<0.01
Libya	240	0.711	<0.01	0.787	<0.01
Madagascar	65	0.605	<0.01	0.571	<0.01
Malawi	187	0.508	<0.01	0.621	<0.01
Mauritania	66	0.788	<0.01	0.779	<0.01
Morocco	298	0.634	<0.01	0.783	<0.01
Mozambique	271	0.679	<0.01	0.811	<0.01
Namibia	215	0.747	<0.01	0.774	<0.01
Nigeria	143	0.149	0.075	0.214	0.01
Rwanda	235	0.542	<0.01	0.688	<0.01
Senegal	303	0.692	<0.01	0.723	<0.01
South Africa	287	0.898	<0.01	0.941	<0.01
Togo	296	0.664	<0.01	0.717	<0.01
Uganda	147	0.368	<0.01	0.294	<0.01
Zambia	252	0.055	0.389	0.404	<0.01
Zimbabwe	232	0.495	<0.01	0.632	<0.01

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