

COVID-19 fake news diffusion across Latin America

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Abstract

Fact-checking verifies a multitude of claims and remains a promising solution to fight fake news. The spread of rumors, hoaxes, and conspiracy theories online is evident in times of crisis, when fake news ramped up across platforms, increasing fear and confusion amongst the population as seen in the COVID-19 pandemic. This article explores fact-checking initiatives in Latin America, using an original Markov-based computational method to cluster topics on tweets and identify their diffusion between different datasets. Drawing on a mixture of quantitative and qualitative methods, including time-series analysis, network analysis and in-depth close reading, our article proposes an in-depth tracing of COVID-related false information across the region, comparing if there is a pattern of behavior through the countries. We rely on the open Twitter application programming interface (API) connection to gather data from public accounts of the six major fact-checking agencies in Latin America, namely: Argentina (Chequeado), Brazil (Agência Lupa), Chile (Mala Espina Check), Colombia (Colombia Check from Consejo de Redacción), Mexico (El Sabueso from Animal Político) and Venezuela (Efecto Cocuyo). In total, these profiles account for 102,379 tweets that were collected between January and July 2020. Our study offers insights into the dynamics of online information dissemination beyond the national level and demonstrates how politics intertwine with the health crisis in this period. Our method is capable of clustering topics in a period of overabundance of information, as we fight not only a pandemic but also an infodemic, evidentiating opportunities to understand and slow the spread of false information.

Full Text

Due to technical limitations, full-text HTML conversion of this manuscript could not be completed. However, the latest manuscript can be downloaded and [accessed as a PDF](#).

Figures

Figure 2

Relationship between terms in the six countries

Cases

	ARGENTINA	BRAZIL	CHILE	COLOMBIA	MEXICO	VENEZUELA
01/01	2.7	5.13	0	0	0	0
08/01	2.27	0.91	0	0	0	0
15/01	3.45	4.62	1.23	3.85	0	0
22/01	0	0	0	2.33	0	10.64
29/01	0	0	0	1.09	0	0
05/02	1.16	6.38	2.56	2	0	5
12/02	0	2.68	0	2.2	0	0
19/02	0	1.35	0	3.33	0	1.35
26/02	0.88	0	12.66	9.89	11.11	0
04/03	0	0	14.71	12.33	0	0
11/03	3.19	4.5	3.8	10.98	4.12	0
18/03	3.12	2.29	4.23	5.26	1.58	0.45
25/03	1.96	1.34	3.01	4.39	0.6	0
01/04	0	3.33	1.52	1.63	0.53	0
08/04	0	0.62	0	1.89	0.82	0
15/04	0	5.07	2.63	1.75	0	0
22/04	0	5.95	1.39	1.68	0.56	0
29/04	0	0.74	2.38	2.06	0.49	0
06/05	0	2.37	0	0	1.56	0.96
13/05	0	0.76	0	1.82	0.56	1.03
20/05	3.96	1.14	1.45	0	0.53	0.23
27/05	0	3.15	0	0	0.59	0
03/06	2.06	1.4	0	1.48	1.2	0
10/06	0	0.87	1.69	0	1.42	0
17/06	3.37	1.41	0	0.83	1.09	0
24/06	0.87	2.6	1.75	0	1.14	0
01/07	1.14	0	3.77	1.54	1.62	0
08/07	0	3.73	0	4.12	0.96	0
15/07	0	2.33	0	2.7	1.42	0
22/07	0	6.36	0	1.83	1.03	0
29/07	0	0	0	4.88	2.33	0

Figure 3

Evolution of the term “casos” (cases) in the time frame

Coronavirus

	ARGENTINA	BRAZIL	CHILE	COLOMBIA	MEXICO	VENEZUELA
01/01	0	0	0	0	0	0
08/01	0	0	0	0	0	0
15/01	0	0	0	0	0	0
22/01	1.2	12.16	4.76	3.49	20	29.79
29/01	4.71	14.93	20.97	4.35	13.33	32.76
05/02	2.33	18.09	28.21	5	0	10
12/02	1.08	1.79	17.14	13.19	28.57	12.37
19/02	0	0	15.79	1.11	0	17.57
26/02	0.88	16.13	20.25	8.79	22.22	55
04/03	0	14.1	16.18	19.18	0	44.16
11/03	7.45	15.32	13.92	21.95	22.68	38.61
18/03	16.67	26.29	14.79	18.42	7.37	40.09
25/03	10.78	18.12	3.61	16.67	7.14	42.6
01/04	3.37	11.33	6.82	24.39	7.89	42.01
08/04	9.47	13.75	8.4	9.43	9.05	42.02
15/04	4.17	15.22	10.53	11.4	8.21	34.16
22/04	11.76	16.76	9.72	16.81	13.97	35.49
29/04	17.71	18.52	15.48	19.59	13.79	29.81
06/05	26.73	13.61	5.97	13.91	7.81	24.82
13/05	37.78	20.61	4.55	13.64	14.44	19.9
20/05	35.64	10.23	10.14	11.54	14.21	14.32
27/05	37.36	17.32	6.45	6.75	11.24	10.07
03/06	36.08	13.29	3.28	5.93	11.95	6.16
10/06	28.57	10.43	5.08	9.92	10.38	5.74
17/06	17.98	11.27	14.89	11.57	9.24	6.32
24/06	31.3	7.14	1.75	14.16	9.47	8.32
01/07	13.64	16.48	9.43	12.31	12.15	7.55
08/07	24.05	9.94	4.44	11.34	10.53	4.42
15/07	18.18	12.21	0	5.41	12.74	4.68
22/07	21.92	7.51	0	9.17	11.86	4.45
29/07	21.95	8.6	0	12.2	10.47	6.97

Figure 4

Evolution of the term “coronavirus” in the time frame

Pandemic

	ARGENTINA	BRAZIL	CHILE	COLOMBIA	MEXICO	VENEZUELA
01/01	0	0	0	0	0	0
08/01	0	0	0	0	0	0
15/01	0	0	0	0	0	0
22/01	0	0	0	0	0	0
29/01	0	0	0	0	0	0
05/02	0	0	0	0	0	0
12/02	0	0	0	0	0	0
19/02	0	0	0	0	0	0
26/02	0	0	0	0	0	0
04/03	0	0	0	0	0	0
11/03	4.26	4.5	1.22	2.44	4.08	0
18/03	4.12	5.32	0.68	2.63	2.63	0.45
25/03	5.83	3.75	0	2.63	2.96	0.36
01/04	6.74	8.12	0	12.2	5.26	3.25
08/04	10.53	3.57	0	6.6	4.12	2.76
15/04	6.25	7.38	0	14.91	8.67	2.47
22/04	5.88	6	1.37	10.08	7.78	4.44
29/04	3.12	9.09	1.15	9.28	3.92	5.4
06/05	5.94	3.87	0	5.22	3.09	5.78
13/05	5.56	5.76	2.99	4.55	3.87	9.56
20/05	1.98	4.23	0	8.65	6.19	8.22
27/05	2.2	5.15	0	12.88	4.68	8.2
03/06	7.22	2.67	1.64	6.67	7.91	4.19
10/06	3.57	11.67	1.69	8.26	8.96	3.53
17/06	4.49	8.78	0	9.09	8.15	3.51
24/06	13.91	4.49	0	5.31	7.17	3.28
01/07	15.91	10.11	0	6.92	8.75	2.83
08/07	12.66	10.91	2.22	11.34	6.22	1.98
15/07	3.41	4.44	0	6.31	8.96	2.64
22/07	8.22	5.71	0	5.5	9.28	2.29
29/07	7.32	5.26	0	2.44	2.33	1.74

Figure 5

Evolution of the term “pandemia” (pandemic) in the timeframe

Quarantine

	ARGENTINA	BRAZIL	CHILE	COLOMBIA	MEXICO	VENEZUELA
01/01	0	0	0	0	0	0
08/01	0	0	0	0	0	0
15/01	0	0	0	0	0	0
22/01	0	1.35	0	0	0	0
29/01	0	0	0	0	0	0
05/02	0	0	0	0	0	0
12/02	0	0	0	2.2	0	0
19/02	0	0	0	0	0	1.35
26/02	0	0	0	1.1	0	0
04/03	0	0	0	0	0	0
11/03	7.45	0.9	0	1.22	0	0
18/03	6.25	0.57	6.34	7.89	2.63	0
25/03	9.8	0.67	10.84	9.65	3.57	0
01/04	2.25	5.33	3.03	5.69	2.11	0.3
08/04	7.37	1.88	4.2	5.66	1.65	1.84
15/04	5.21	0	9.21	2.63	0.51	6.17
22/04	1.96	0.54	4.17	0.84	3.91	5.8
29/04	4.17	0	1.19	1.03	0.99	6.34
06/05	10.89	0	2.99	5.22	5.21	7.95
13/05	4.44	0	15.15	0	2.22	8.53
20/05	17.82	0.57	4.35	0	0	7.98
27/05	5.49	0.79	0	0.61	0.59	6.79
03/06	8.25	0	1.64	1.48	1.2	6.16
10/06	4.76	0	1.69	0	0.94	5.96
17/06	7.87	2.11	2.13	0	1.63	4.45
24/06	11.3	0.65	0	0	1.89	3.5
01/07	4.55	0	0	0	1.21	4.72
08/07	0	0.62	0	0	0.96	4.27
15/07	9.09	0.58	0	0.9	1.42	4.05
22/07	8.22	0	6.67	0.92	1.55	3.94
29/07	4.88	0	0	7.32	1.16	2.09

Figure 6

Evolution of term “cuarentena” (quarantine) in the time frame

Vaccine

	ARGENTINA	BRAZIL	CHILE	COLOMBIA	MEXICO	VENEZUELA
01/01	0	0	0	0	0	0
08/01	0	0	0	0	0	0
15/01	0	1.54	3.7	0	0	0
22/01	0	0	1.59	0	0	0
29/01	0	0	0	0	0	0
05/02	0	0	2.56	2	0	0
12/02	0	0	0	0	0	0
19/02	2.6	0	0	0	0	0
26/02	2.63	0	1.27	0	11.11	0
04/03	2.33	1.28	1.47	4.11	0	0
11/03	1.06	4.5	0	3.66	5.15	0
18/03	0	5.71	0.7	7.02	1.58	5.41
25/03	0.98	7.38	0	10.53	0.6	4.33
01/04	0	0.67	0	6.5	1.05	3.25
08/04	5.26	0.62	0	4.72	0	4.29
15/04	2.08	0.72	5.26	5.26	0	10.7
22/04	2.94	0	5.56	7.56	2.79	6.19
29/04	2.08	0	0	7.22	2.46	7.75
06/05	0	2.37	0	4.35	2.08	6.27
13/05	1.11	0	1.52	9.09	1.11	4.65
20/05	0	0.57	0	4.81	2.63	4.23
27/05	2.2	3.94	0	4.29	1.18	1.17
03/06	0	2.8	0	2.96	2.39	0
10/06	3.57	2.61	5.08	10.74	3.77	1.55
17/06	0	15.49	2.13	2.48	4.89	3.28
24/06	0	1.3	0	4.42	3.41	2.84
01/07	0	11.36	3.77	3.85	3.64	2.83
08/07	0	4.35	2.22	1.03	3.83	2.28
15/07	1.14	8.14	0	3.6	3.3	1.64
22/07	2.74	13.87	0	0.92	4.12	0.76
29/07	0	9.68	0	2.44	3.49	0.7

Figure 7

Evolution of term "vacuna" (vaccine) in the time frame

President

	ARGENTINA	BRAZIL	CHILE	COLOMBIA	MEXICO	VENEZUELA
01/01	14.86	7.69	1.3	0	0	0
08/01	15.91	5.45	0	0	0	0
15/01	4.6	7.69	8.64	1.28	18.75	0
22/01	1.2	5.41	1.59	0	20	0
29/01	7.06	4.48	0	0	0	0
05/02	5.81	3.19	0	0	0	0
12/02	6.45	9.82	0	0	0	0
19/02	12.99	6.76	0	1.11	0	0
26/02	42.98	22.58	0	0	0	0
04/03	17.44	2.56	1.47	0	0	0
11/03	11.7	9.01	6.33	1.22	0	0
18/03	0	2.29	0	0.88	1.58	0
25/03	3.92	6.04	1.2	0.88	5.36	0
01/04	1.12	4.67	0	0	6.84	0
08/04	5.26	1.88	0.84	1.89	4.12	0
15/04	3.12	3.62	1.32	0	0.51	0
22/04	1.96	10.81	0	0.84	3.35	0
29/04	1.04	1.48	0	3.09	3.45	0
06/05	7.92	2.96	0	2.61	7.29	0
13/05	2.22	2.29	6.06	0.91	3.89	0
20/05	3.96	10.8	0	0	2.63	0
27/05	4.4	4.72	0	0	1.78	0
03/06	6.19	3.5	0	0.74	2.39	0
10/06	3.57	1.74	0	0	2.83	0
17/06	0	0.7	2.13	1.65	6.52	0
24/06	1.74	10.39	1.75	1.77	2.65	0
01/07	0	8.52	11.32	0.77	4.86	0
08/07	2.53	11.18	2.22	0	2.87	0
15/07	7.95	4.65	0	1.8	1.89	0
22/07	0	4.05	13.33	3.67	1.03	0
29/07	7.32	4.3	16.67	0	0	0

Figure 8

Evolution of term "presidente" (president) in the time frame