

Article

# Gauging the Social Media Attention of COVID-19 Articles

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## I N F O

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## A B S T R A C T

**Introduction:** Altmetrics or alternative metrics has become a novel technique for measuring the impact of the research. It considers social web as a major source of data and measures how a piece of literature has discussed in various social platforms in terms of shares, mentions, bookmarks, tweets, saves, etc. Rather than measuring the scientific impact, it gauges the social impact of the research which can not be done by the conventional way which primarily consisted of counting the citations bagged by an article.

**Importance:** The deadly pandemic COVID-19 has travelled in social media very fast and subsequently fake information has become a headache. The main impetus for conducting the present study is to know how well articles on COVID-19 have propagated and discussed in social platforms since the disease is unknown to many and social media has become a major carrier of fake information which tempted many to make wrong decisions. We decided to conduct the present study to know how well COVID-19 articles are diffused in social platforms and to find out the hot platform for the discussion. The result of the study can be used for taking proper decisions regarding the management of various social platforms amid this kind of epizootic pandemic.

**Objectives:** The main objective of the study is to measure the social media attention/ altmetrics of COVID-19 articles.

**Methodology:** The data for the study would be collected from Dimension database which is a dedicated database for altmetric studies. A search by using the keyword "COVID-19" would be carried out in the database to retrieve articles on the pandemic as on 01 Dec 2020. The articles would be sorted according to the number of social media attention received from highest to lowest. A total of 25 articles with the highest social media attention would be selected and their major metrics from Facebook, Twitter, Mendeley, Blogs, News outlets would be measured and tabled using Excel for the subsequent analysis. The data would be subjected to correlation to know the associations between citations and altmetric attention score in the case of COVID-19 articles.

**Keywords:** Altmetrics, Tweets, Citations, Social Media, COVID-19, Corona

## Introduction

Coronavirus or COVID-19 is an ongoing pandemic, which was first reported in Wuhan, China, in December 2019. Eventually, the news has influenced media headlines around the world. Numerous cases and deaths by country have been reported. As of 30 February 2021, there have been 102083344 confirmed cases of COVID-19, including 2209195 deaths, reported to WHO (WHO, 2020). The researchers are working around the world on the fight against COVID-19 and discovering vaccines to protect from the virus that causes COVID-19 without having any risk. Meanwhile, scholarly publication related to COVID-19 has also increased rapidly. Consequently, there may be fabrication in research. WHO provides a platform for gathering the latest international scientific findings on Covid-19 which is updated daily (WHO, 2020). It's important to examine the research publication useful for the social impact. Social media is recently used as an integral tool for the evaluation of research activities. Whereas the traditional Citation metrics trace the number of times a publication is cited by the others, they do not consider the dissemination to the social media platforms. Altmetrics is one of the tracking tools to track and analyze the online activities around scholarly literature, it is complementary to the traditional citation metrics (Fabiano et al.), (2020). Altmetrics understands all the potential impacts of research. It is the data source from discussion happening online around research because all peoples are communicating with each other through online in their everyday lives (Altmetric.com). This tool provides access to the attention of data received by the scientific products in different social media such as Twitter, Facebook, YouTube, Policy document, Blog, News and so on. Also, the main indicator of Dimension is the Altmetric Attention Score (AAS). The AAS is calculated by summing each indicator multiplied by its weight with necessary adjustments, and the AAS are updated in real-time (Huang et al., 2018).

In this study, we attempted to measure the social media attention of COVID-19 literature using the Dimensions dataset. The major objectives of the study are underpinned below.

### Objectives of the study

- To measure the social media attention/altmetrics of COVID-19 articles
- To know the Twitter metrics of COVID-19 articles
- To know the Mendeley readership of COVID-19 articles.

### Previous Studies

Batooli, Sayyah (2020), examined to evaluate the rate of attention to the scientific productions on COVID-19 in social media over four months. The result of this research showed a significant positive relationship between the citations and altmetric indicators. Bonyadi and Moghiseh

(2020) investigate the level of attention paid to the scientific outputs of researchers focusing on the Coronavirus and family viruses on social media. The study was conducted using altmetrics and scientometric indicators. The result shows that 38% of scientific outputs, 3322 times in social media, 206 times in news and blogs, 39 times in policy and patents, 12 times in other sources and three times in scientific sources have been considered. Fabiano et al., (2020) conducted a study to assess the dissemination of COVID-19 articles as measured by Twitter dissemination, compared to traditional citation-based metrics, determine article characteristics associated with tweet rates. The result of the study concluded that COVID-19 articles had significantly higher tweets rates compared to citation rates. This study further identified article characteristics that are correlated with the dissemination of articles on Twitter, such as 2018 journal impact factor, continent of the corresponding author, topic and open access status. This highlights the importance of altmetrics in periods of rapidly expanding research, such as the COVID-19 pandemic to localize highly disseminated articles. Patel et al., (2020) determined how the social media impact of the radiological literature has changed during the COVID-19 pandemic. It is found that sustained outliers and statistically significant increases in the aggregate fAA score across all five journals, We did not find significantly decreased rates of publication of non-Covid articles in the journals experiencing elevated fAA scores. Torres & Robinson (2020), analyzed the uptake of open access on COVID-19 related literature as well as the social media attention they gather when compared with non-OA papers. The findings showed that most of the publications on COVID-19 are OA and receive higher social media attention than non-OA papers. Vysakh & Babu (2020) conducted a study to measure how well COVID-19 articles attracted in the social web during the deadly pandemic period. The results showed that social media attention to the articles was fluctuating in each month recording an upward and downward trend. Twitter was the major carrier of COVID-19 articles with a total 143452 mentions.

### Data and Method

The study is to measure the altmetric score of COVID-19 articles published in the Dimension database which is a dedicated database for altmetric studies. A search by using the keyword "COVID-19" was carried out in the database to retrieve articles on the pandemic as of December 2020. The articles sorted according to the number of social media attention received from highest to lowest altmetric scores. A total of 25 articles with the highest social media attention were selected and their major metrics from Facebook, Twitter, Mendeley, Blogs, News outlets and other major metrics were measured. The analysis was done by using Excel and the references were done according to the APA 6<sup>th</sup> edition.

## Result and Discussion

### Article Distribution and Metrics

The study made an effort to measure the social media attention of COVID-19 articles published in dimension databases. The article publication from January to December 2020 is considered and major metrics from social platforms are gauged. Figure 1, demonstrates the number of articles published in each month, their corresponding citations from Dimensions and altmetric score calculated by Altmetric.com. A total of 25 articles were seen and the highest number of publications recorded in April, May and June with 5 articles respectively. Articles published in April got the highest number of citations and social media attentions accounted for 4718 and 111110 respectively. Both citations and social media attractions to the articles were fluctuating in each month and in the last month i.e. November recorded 234 citations and 60145 social media citations for 3 articles.

### Social Media Attention in Details

Altmetric uses a lot of social media data to calculate scholarly impacts; Altmetric helps to find out the scores of articles discussed on social media platforms such as in Facebook, blogs, Twitter, Wikipedia, news, LinkedIn, etc. In this study, it is found that Twitter proved to be the major platform for discussing COVID-19 articles with a total score of 779583. Mendeley is the second major platform on which articles got outstanding buzz with a total mention of 35051 followed by News outlet with 10321 posts.

Facebook also became a major platform on which remarkable activities have happened about COVID-19 articles and received a total score of 1143. It can also be found from the table that in many platforms, articles are yet to penetrate like Wiki, Q & A threads and policy sources. The metric Highlights recorded the least mention of COVID-19 articles (See Table 1).

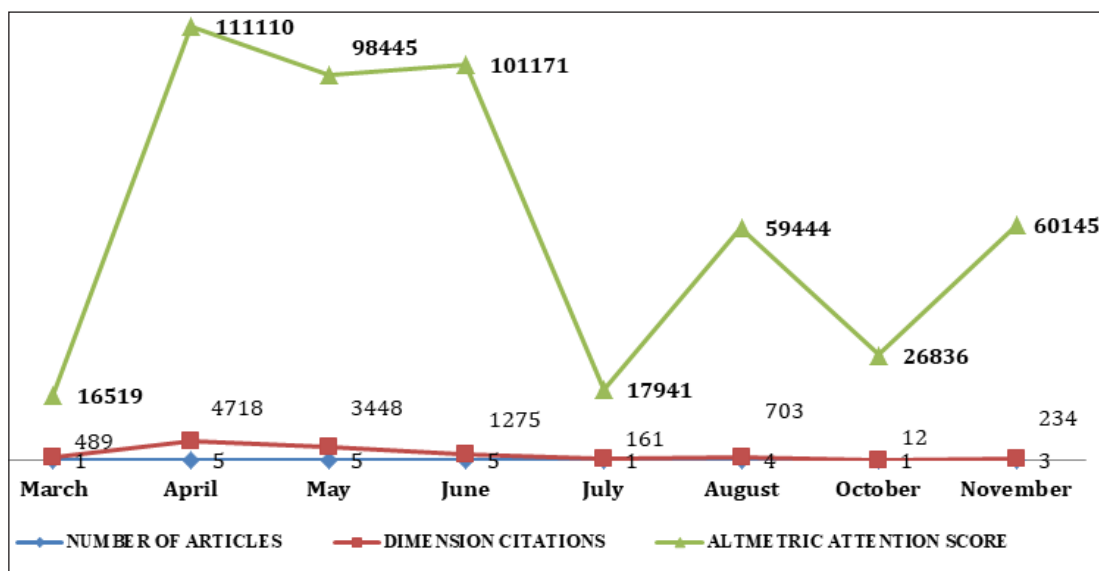


Figure 1. Article Distribution and Metrics

Table 1. Major Social Media Attention in Details

Months	News	Blogs	Policy documents	Twitter	Face-book	WIKI	Reddit	F1000	QnA	Videos	Men-deley	Total
March	327	29	1	18381	60	2	26	0	0	8	1828	20662
April	1206	294	20	224156	285	21	75	1	7	47	13831	239943
May	2586	312	23	128529	213	15	103	4	4	37	9226	141052
June	1797	179	10	156750	246	15	100	1	2	22	5163	164285
July	630	33	5	24668	15	1	14	0	0	0	536	25902
August	1498	133	3	85213	173	3	51	1	0	20	3093	90188
October	298	34	0	38033	57	4	29	0	0	0	172	38627
November	805	98	2	103853	94	2	72	1	0	20	1202	106149
<b>Total</b>	<b>9147</b>	<b>1112</b>	<b>64</b>	<b>779583</b>	<b>1143</b>	<b>63</b>	<b>470</b>	<b>8</b>	<b>13</b>	<b>154</b>	<b>35051</b>	<b>826808</b>

### Geographical and Demographic Breakdown of Tweets

The altmetric automatically gathers the tweet and re-tweet which contains a direct link to the scholarly publication. The most tweeters who share the research output were collected from their profiles.

The types of users are gathered from their profiles provided by the description of Twitter users (Altmetric.com).

From Table 1 and Figure 2, the topmost active tweeters are from the US with a total mention of 607652. They are followed by the UK with a total of 52243.

A large majority of user categories are the members of the public with a count of 577312.

### Geographical and Demographic Distribution of Readers in Mendeley

The Mendeley reader count is tracked by the altmetric by retrieving a total number of Mendeley readership. The Mendeley reader counts throwback the scholarly impact and also the education and professional impact (Thelwall, M, & Nevill, T. (2018). The data shown below were compiled from readership statistics from Mendeley readers. The demographic factors show that a total of 4253 of researchers are the foremost of the Mendeley reader by profession followed by the students/ bachelor with a total mention of 1356. Most of the reader discipline is from medicine and dentistry with 7890 mentions, followed by biochemistry, genetics & molecular biology with 1026 mentions.

**Table 2. Geographical and Demographic Distribution of Tweets**

S. No.	Twitter	Geographical Breakdown			Demographic Breakdown		
		Country	Count	AS%	Type	Count	AS%
1	72640	SPAIN	6123	8	Members of public	24109	91
2	61689	US	16806	27		22439	96
3	38033	US	16039	42		25254	82
4	26900	US	3124	12		16676	87
5	29612	FRANCE	3545	12		16909	91
6	49509	US	11126	22		55945	92
7	27595	US	3577	13		16020	84
8	32489	US	6142	19		22196	89
9	33398	US	5382	16		14790	85
10	26620	US	3362	13		21201	88
11	26698	US	8646	32		33850	90
12	24667	US	4761	19		18068	91
13	29717	US	5570	19		14506	85
14	20327	US	3173	16		16269	82
15	18381	US	6585	36		23541	92
16	60503	US	27148	45		24109	92
17	18576	US	2918	16		22439	86
18	26415	UK	3603	14		25254	84
19	16424	US	1193	7		16676	90
20	22149	US	5541	25		16909	96
21	37417	US	5247	14		55945	90
22	20224	US	1911	9		16020	89
23	16336	US	2299	14		22196	89

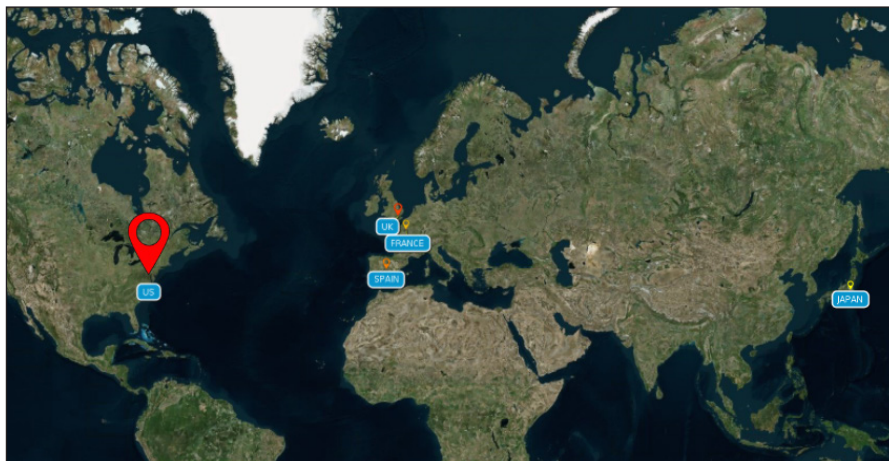


Figure 2. Tweets by Countries

Table 3. Geographical and Demographic Distribution of Readers in Mendeley

S. No.	Mendeley	Geographical breakdown			Demographic breakdown					
		Country	Count	AS %	Reader by profession	count	AS %	Readers by discipline	count	AS%
1	5058	Unknown	5058	100	Student> Bachelor	817	16	Biochemistry, genetics & molecular biology	1026	20
2	0	Unknown	0	0	-	0	0	-	0	0
3	172	Unknown	172	100	Other	37	22	Medicine and Dentistry	65	38
4	5987	Unknown	5987	100	Researchers	837	14	Medicine and Dentistry	1608	27
5	1448	Unknown	1448	100	Researchers	194	13	Medicine and Dentistry	506	35
6	217	Unknown	217	100	Researchers	32	15	Medicine and Dentistry	72	33
7	2323	Unknown	2323	100	Student> Bachelor	315	14	Medicine and Dentistry	750	32
8	752	Unknown	752	100	Researchers	130	17	Medicine and Dentistry	145	19
9	1604	Unknown	1604	100	Researchers	275	17	Medicine and Dentistry	388	24
10	1536	Unknown	1536	100	Researchers	300	20	Medicine and Dentistry	311	20
11	616	Unknown	616	100	Researchers	133	22	Medicine and Dentistry	160	26
12	536	Unknown	536	100	Researchers	86	16	Medicine and Dentistry	129	24
13	41	Unknown	41	100	Student/ bachelor	7	17	Engineering	4	10
14	2498	Unknown	2498	100	Researchers	482	19	Medicine and Dentistry	529	21
15	1828	Unknown	1828	100	Researchers	230	13	Medicine and Dentistry	429	23
16	105	Unknown	105	100	Researchers	23	22	Medicine and Dentistry	45	43
17	2140	Unknown	2140	100	Researchers	410	19	Medicine and Dentistry	627	29
18	265	Unknown	265	100	Researchers	44	17	Medicine and Dentistry	94	35
19	1244	Unknown	1244	100	Student/ bachelor	217	17	Medicine and Dentistry	238	19

20	211	Unknown	211	100	Researchers	32	15	Medicine and Dentistry	64	30
21	2065	Unknown	2065	100	Researchers	327	16	Medicine and Dentistry	681	33
22	1373	Unknown	1373	100	Researchers	261	19	Medicine and Dentistry	357	26
23	1202	Unknown	1202	100	Researchers	208	17	Medicine and Dentistry	286	24
24	1830	Unknown	1830	100	Researchers	249	14	Medicine and Dentistry	409	22
25	0	Unknown	0	0		0	0		0	0
Total	35051		29993			5646			8923	

## Conclusion

The present study presides to gauging the social media attention of COVID-19 articles published in Dimension database. The altmetrics can potentially be gathered from any online forum where researchers are being discussed, that include social media, research blog, public policy documents, news article and more, the possibilities are endless. A total of 25 articles with the highest social media attention were selected and their major metrics from Facebook, Twitter, Mendeley, Blogs, News outlets and other major metrics were measured. The articles were collected by sorting the publication by highest altmetric score. In this study, it is found that Twitter proved to be the major platform for discussing COVID-19 articles. The most Tweeters were from the US and demographically they were identified as members of the public. Reports show that the majority of the Twitter users are situated in the US and the majority of the discussion is in English. So the result of the current study goes in line with the study findings of Babu R, & Vysakh C. (2019). They also confirmed in their study that the majority of the tweeters were from US and UK. Further, the study noted that Mendeley was the second major platform on which articles got outstanding buzz followed by News outlet. Researchers in Medicine and Dentistry were the major readers of articles on COVID-19 in Mendeley. Facebook also became a major platform on which remarkable activities have happened about COVID-19 articles. It can also be found that in many platforms, articles are yet to penetrate like Wiki Q, A threads and policy sources. The metric Highlights recorded the least mention of COVID-19 articles. The result of the study gives proper insights for taking prudent decisions regarding the management of various social platforms amid this kind of pandemic since the platforms have fructified fake information at large.

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