ICEMC 2021
International Conference on Emerging Media & Communication

INTERMEDIA AGENDA SETTING IN COVID-19 VACCINE DIGITAL NETWORKS

Andhika Kurniawan Pontoh (a)*
*Corresponding author

(a) Universitas Indonesia, Jl. Salemba Raya No.4, Jakarta, Indonesia, andika.kurniawan@ui.ac.id

Abstract

Digital media on the Internet makes the public easily access COVID-19 vaccine Information. Digital media is also able to spread news quickly via a URL or link, with digital media dissemination and intensity of the COVID-19 vaccine topic increased sharply at the end of 2020, a series of events in the COVID-19 vaccine is quickly covered by internet information sources. By using the Intermedia Agenda Setting concept, the objective of this study describes the structure of COVID-19 vaccine digital networks which includes organization and media that can influence their agenda one and another. This study uses quantitative methods by utilizing big data via Media Cloud, Cliff-Clavin engine and social network analysis with a total sample of 20,535 stories online media worldwide with English language. This research reveals that in the digital networks: key people in politics, vaccine companies, mainstream media, government health organizations, and anti-vaccine media play an essential role in influencing COVID-19 vaccine Information.

Keywords: Intermedia agenda setting, media cloud, big data, social network analysis

1.   Introduction

The trend of using media on the internet to find health information is increasing in the era of digitalization. In 2012, 72% to 90% of internet users searched for health information via the internet (Perrin, 2015). Other studies have shown that the Internet and social media are the main tools for finding vaccine-related information (Buis & Carpenter, 2009). The internet also makes it easier for individuals to access and control health information. In addition, the dissemination of information about vaccinations becomes faster and convinces individuals to get vaccinated via internet. On the other hand, the use of the digital world as a source of vaccine information also has an impact on the increasing anti-vaccine movement (Wilson et al., 2014). The urgency of the need for a COVID-19 vaccine is a major issue for global health. The rapid development of COVID-19 vaccines and, on a large scale, has changed the standard for conventional vaccine development which requires an average development time of 10 years (Le et al., 2020). This urgency is in line with the dissemination of COVID-19 Vaccine Information to the public. The global spread of COVID-19 Vaccine Information began when major vaccine companies announced the availability of a COVID-19 vaccine. Figure 1 shows four names of companies providing COVID-19 vaccines have become a trend in digital news and information in the world, including Sinovac, Pfizer, Moderna, and Astra Zeneca. These three words received a significant increase in sentiment in the last four months at the end of 2020.
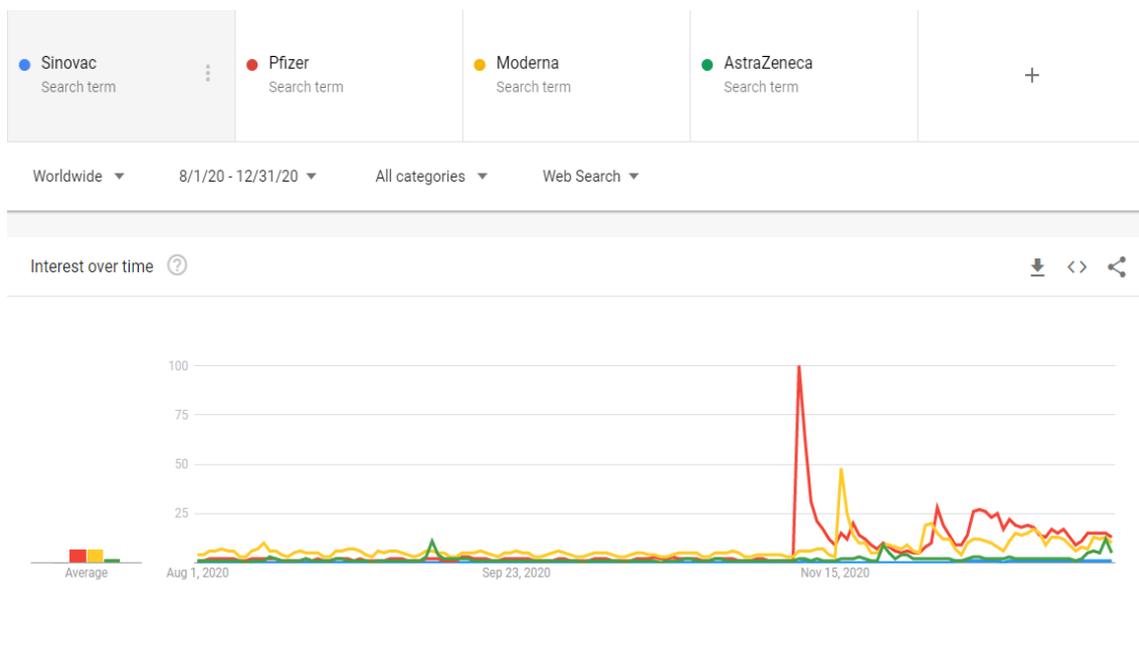

Figure 1. Search Trends for COVID-19 Vaccine Brands

The trend of search sentiment for vaccine company names is also in line with the search for the word "COVID-19 Vaccine" figure 2 shows data collected through Google Trends, showing that the topic of COVID-19 vaccines increased significantly in the last four months at the end of 2020. Local state authorities did not hold back public interest the world to COVID-19 Vaccine Information. Via the internet, people are free to find and determine the interests of the COVID-19 vaccine in which the openness of resources

through the internet makes the world community united and interdependent. The development of internet network technology has changed the media landscape.
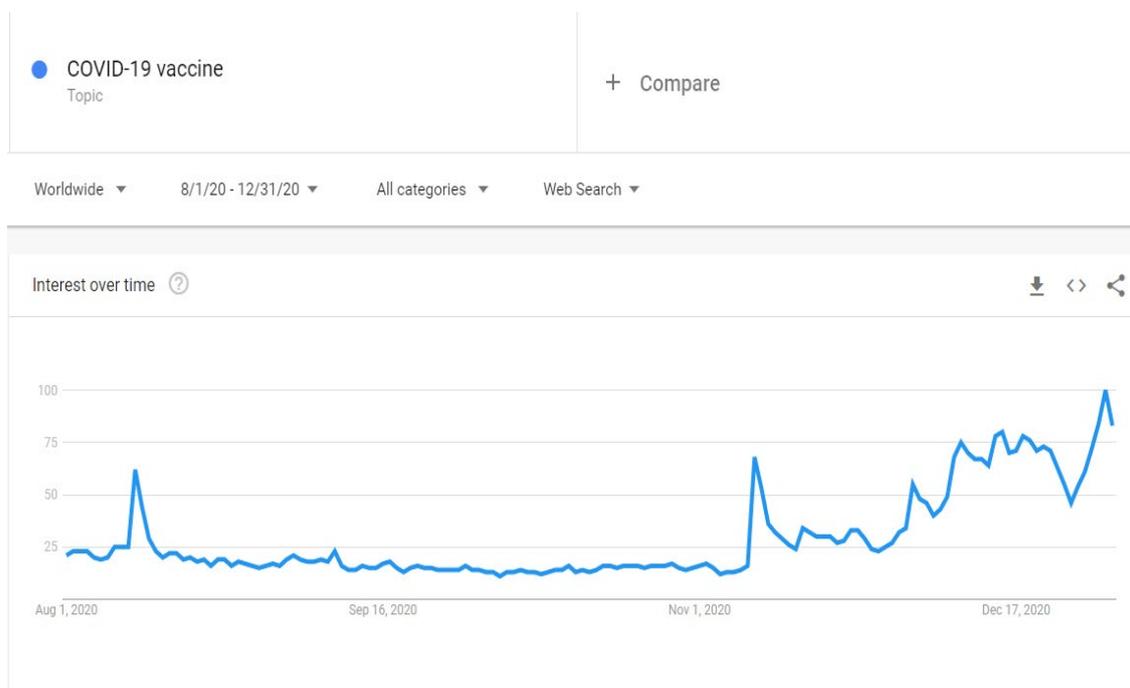

Figure 2. Search Trends for "COVID-19 Vaccine

News sources have become more varied and numerous via the internet. The internet makes information conveyed faster. The internet also changes media business patterns, changes news circulation, and how news is presented to audiences (Harder et al., 2017)The Internet and digitization have made media more flexible in technology, genre, and organizational format (Chadwick, 2014). The presence of news websites and social media makes news publications fast-paced without time limits news need not be a "finished" product, journalists can conclude some news content through social media when an event is revealed without being present at the location of the event (Hermida et al., 2014).

The development of the Internet has made significant changes to the news and media business; however, legacy and well-known and long-standing media significantly influence agenda-setting among media in the digital world (Conway et al., 2015). Other studies have also revealed that online websites owned by previous mainstream media have a more significant influence on new online media in transferring information (Vonbun et al., 2016). The Intermedia Agenda Setting in digital media is also fragmented both in the public agenda, the media agenda which allows the media's voice to be more easily conveyed and diverse (Ognyanova, 2013). In a digital network, the website organization is the actor in the communication network structure. The number of actors (nodes) is always developing. This is because of the links or relationship that involve organizations with one another in a digital network. Agenda-setting consists of interrelated components. These components include the media agenda, the public interest agenda, and the agenda. The three components are influenced by the interests of an issue or event globally. Media influence includes the roles of media editors (gates) and interest elites (Dearing et al., 1996). Issues that appear in the

media are a representation of the power and advocacy that individuals and organizations have to influence the reciprocal process between issue supporters, the media, and the public.

The key to the success of the agenda set is getting the issue out of the public's mind (Dearing et al., 1996). The prominence of issues in the news makes the media successful in telling the public what to think, and telling the public how to think (McCombs, 2005). The process of transferring the agenda between media is referred to as Intermedia Agenda Setting is a concept that refers to the influence of the media agenda on other media (Lopez-Escobar et al., 1998). Another opinion reveals that Intermedia Agenda Setting refers to the transfer of news between media (Harder et al., 2017). Intermedia Agenda Setting research focuses on measuring the extent to which news content moves from one media to another (Atwater et al., 1987).

The digital information network structure consists of actors in the form of sites: mainstream media, organizations, and individuals. The transfer of information between these actors in developing an information network is an actor-network connection is a form of Intermedia Agenda Setting. In the Networks, actor will continue to grow (Barabási & Albert, 1999). To understand the development of actors into the network can be explained through the Preferential Engagement Barabási-Albert model. Preferential Engagement is a concept that describes the preferences of network actors to choose a leader in the network structure (Bianconi & Barabási, 2001). This concept also explains that well-formed actors in the network structure will continue to be chosen by new actors. Preferential Attachment also explains that well-known actors have multiple linkages, and former actors and actors with a higher degree tend to have the opportunity to become the most influential actors compared to other new actors (Bianconi & Barabási, 2001).

2. Problem Statement

The digital network for disseminating information on COVID-19 vaccines consists of actors in the form of websites: online media, social media, and individuals through personal blogs, and organizations that convey information about the COVID-19 vaccine. These actors carry out transfers and competitions in spreading their agenda as a form of relations and connections in the network. This paper assumes this transfer process as a form of Intermedia Agenda Setting. This research will focus on the structure of the network and dig deeper into the quality of the relationships between actors. To determine the quality of the relationship between actors, the researcher uses the concept of Preferential Attachment in Albert's Barabási model, which is a concept that explains the preferences of network actors to choose leaders in the network structure (Bianconi & Barabási, 2001).

Through the concept of Preferential Attachment, this research will dig deeper into the structure network of Intermedia Agenda Setting COVID-19 vaccine. Previous research has revealed that global mainstream media, such as the New York Times are the most influential in global news coverage. There are more news publications in developed countries than in developing countries (Golan, 2006). News sources, for instance, the New York Times and the Washington Post are other sources of media reference in addressing issues. In addition, development media have a central role in disseminating information (Stern et al., 2020). Online media greatly affects the media that rarely publish the media. Legacy media still has essintial role in political agenda (Langer & Gruber, 2021). The elite media can function as the vertical media that transfer agendas vertically, reaching out to the largest population possible (Su & Xiao, 2020).

472

Mainstream newspapers most often give issue attention to right-wing alternative media outlets in order to protect the boundaries of professional journalism as an institution as well as the limits of the debate from actors that are perceived as both journalistically and ideologically deviant in Scandinavian countries media landscape (Nygaard, 2020). On social media, Twitter can spread agenda-setting more effectively (Harder et al., 2017).

3. Research Questions

3.1. How is digital network structure of Intermedia Agenda Setting Covid-19 Vaccine?

4. Purpose of the Study

The study aims to explain the structure and media's position within Intermedia Agenda Setting on Covid-19 Vaccine.

5. Research Methods

This study uses a quantitative approach using the Media Cloud big data tool, a web-based open-source platform, to study the media ecosystem. Media Cloud analysis tools help researchers to be better in understanding the opportunities of Intermedia Agenda Setting on Covid-19 Vaccine and barriers to reframing prevailing media narratives around current issues and the sub-texts that drive them. This study analyzed a set of web pages available by the Media Cloud, identified the news or article's narrative and intensity, and conducted a link analysis integrated with Social Network Analysis. By combining these analyses, it provides research that results on organizations' influence via the web and online media on the Dissemination of COVID-19 Vaccine Information. Researchers search for the keywords COVID Vaccine from August 1st, 2020, to January 31st, 2021, using a set of English websites in Media Cloud. Media Cloud also can determine top person and organization in Covid Vaccine articles. This tool, called CLIFF-CLAVIN engine, is a combination between open-source geoparsing systems in which Clavin counts based on the frequency of mention as a measure of focus of an article and Cliff counts based on the geographic Place in I the news article (D'Ignazio et al., 2014).

6. Findings

Data collection is obtained from August 1st, 2020 to January 31st, 2021 by using the Media Cloud platform 20,535 stories from the Internet which provides an overview of news intensity with the keyword "Covid Vaccine". Data disclosed by Media Cloud reveals articles and organizations that can influence the global spread of Covid Vaccine information. Figure 1 shows graph of the most intensity narratives made by world organizations in disseminating information about the Covid Vaccine. To choose which organization has the most influence in the network, the researcher looks at the number of in-links that most of the organizations have as the in-link count meaning that their narrative has been favored by other sources. Based on data disclosed by Media Cloud, Pfizer has a significant role in influencing the narrative of Covid Vaccine information globally.

Based on news attention graphs collected via cloud data, it shows that news about the Covid Vaccine significantly occurred on the first week and second week of December 2020, significant news intensity occurred from December 8th until 10th , 2021 with a total of 434 news stories that is related to vaccine effectiveness. Astra Zeneca and Pfizer vaccines' effectiveness began to be effective in the second dose. The next event that became a concern in the socialization of the COVID-19 vaccine was the use of vaccines in emergency cases approved by the FDA and CDC, which was occurred in the period of December 2nd and 3rd, 2020. The other most significant is December 11th until 15th, 2020 period which is FDA approved the Covid Vaccine. Coverage of the Covid-19 Vaccine is reflected in the most meaningful stories the organization publishes over the website.

Table 1 shows the 20 most influential news stories in the spread of the Coronavirus Vaccine based on media in-links' calculations. The number of in-links describes the number of news references. Forwarded by another organization, JCVI story: provisional update of priority group advice for COVID-19 vaccination with a total of 11 in-link media, and Priority group for coronavirus (COVID-19) vaccination: advice from JCVI, December 2nd, 2020, with a total of 9 media in-links: Alaska Health Care Worker Has Serious Allergic Reaction to Pfizer Vaccine by New York Times with a total of eight total in-links, Vaccine Queue Calculator for UK by omnicalculator.com with a total of eight total in-links, Less than a year to develop a COVID Vaccine here is why you shouldn't worry about conversation with a total of seven total in-links, Moderna Begins Testing its Coronavirus Vaccine in Children by New York times with a total of seven total in-links, Joint Committee on Vaccination and Immunization: advice on priority groups for COVID-19 Vaccination, December 30, 2020 by data.gov.uk with a total of seven total links, AstraZeneca Covid-19 Vaccine Data Not Exhausted by Wired with a total of seven total in-links, and Moderna vaccine Covid-19 is very effective, early see the data displayed with a total of seven total in-links. Based on table 1, the most influential stories of COVID-19 Vaccines shows that government organizations, for example, data.gov.uk, scientific website news.harvard.edu, and well-known media, in this case, the New York Times, Wired, conversation, and standards.co.uk are world organizations which created the most compelling narratives about the COVID-19 vaccine.

Table 1. The Most the Most Influential Narratives Covid-19 Vaccine

Rank	Stories	Source Stories	Media_in link_count
1	JCVI: updated interim advice on priority groups for COVID-19 vaccination	data.gov.uk	11
2	Priority groups for coronavirus (COVID-19) vaccination: advice from the JCVI, 2 December 2020	data.gov.uk	9
3	COVID-19 | Launch and Scale Speedometer	launchandscalefaster.org	9
4	Vaccine Queue Calculator for the UK	omnicalculator.com	8
5	Alaska Health Care Worker Had Serious Allergic Reaction to Pfizer Vaccine	New York Times	8
6	Joint Committee on Vaccination and Immunisation: advice on priority groups for COVID-19 vaccination, December 30 2020	data.gov.uk	7
7	The AstraZeneca Covid Vaccine Data Is not Up to Snuff	Wired	7
8	Moderna to Begin Testing Its Coronavirus Vaccine in Children	New York Times	7

9	Less than a year to develop a COVID vaccine â€ "here is why you should not be alarmed	Conversation	7
10	People are â€˜jumping the Covid Vaccine queueâ€™ due to I.T. loophole – EXCLUSIVE	standard.co.uk	6
11	Anthony Fauci offers a timeline for ending the COVID-19 pandemic	news.harvard.edu	6
12	Modernaâ€™s Covid-19 vaccine is powerfully effective, early look at the data show	STAT	6
13	These NYC first responders fear COVID-19 vaccine side effects	New York Post	6
14	The Latest Vaccine News Doesnâ€™t Tell the Full Story	New York Times	6
15	Exclusive: Suspected North Korean hackers targeted COVID vaccine maker AstraZeneca - sources	Reuters	6
16	California State Epidemiologist Statement Recommending Providers Pause Administration of Single Lot of Moderna COVID-19 Vaccine	cdph.ca.gov	6
17	COVID Vaccine - Georgia Department of Public Health	State News - United States - Georgia	5
18	Covid Vaccine	covidvaccine.mo.gov	5
19	Palestinians excluded from Israeli Covid vaccine rollout as jabs go to settlers	Guardian	5
20	FDA Panel gives the green light to Pfizer's Covid Vaccine	New York Times	5

Based on total in-link on the website, Table 2 reveals famous media such as CNBC, Business Insider, Twitter as Social Media, Guardian, The New York Times, Conversation, and the BBC critical role in disseminating information on the Covid vaccine. Surprisingly, anti-vaccination media called childrenshealthdefense.org can affect the public about COVID anti-vaccination. The most compelling story from childrenshealthdefense.org, for example, Death by Coincidence? with a total of 5 media in-links, Fauci Slams U.K.'s Speedy Review of Pfizer, BioNTech COVID Shot + More Children's Health Defense with a total of 4 media in-links, China Health Experts Call for Suspension of COVID Vaccines as Norway Investigates 33 Deaths, Germany Probes 10 Deaths with a total of 4 media in-links, Johns Hopkins Scientist: Medical Certainty Pfizer Vaccine Caused Death of Florida Doctor with a total of 4 media in-links, Media Hypes Moderna COVID Vaccine, Downplays Risks Children's Health Defense with a total of 4 media in-links. These data shows that anti-vaccine movement also works effectively to disseminate about anti-COVID-19 vaccine. Table 2 also describes any organization that can influence Facebook society based on Facebook Share. The most shared stories on Facebook are: Doctors say CDC should warn people the side effects from COVID vaccine shots will not be a walk in the park' by CNBC with total Facebook Share amounted to 333,105 shares; Health care worker dies after the second dose of COVID vaccine, investigations underway by Orange County Register with total Facebook Share amounted to 169,332 shares; You can't sue Pfizer or Moderna if you have severe Covid vaccine side effects. The government likely will not compensate you for damages either by CNBC with total Facebook Share amounted to 150,845 shares; Would you be willing to get a Covid vaccine in exchange for a $1,500 stimulus check? How one bold proposal would work by CNBC with total Facebook Share amounted to 104,059 shares.

Table 2. The most influential Organization COVID-19 Vaccine based on stories

Rank	Organization	sum__inlink_	inlink_	outlink_	story_	facebook_share_
1	CNBC	102	109	28	323	1000069
2	Business Insider	101	168	45	124	28830
3	Twitter	93	99	10	77	9307
4	Guardian	87	92	44	315	274416
5	New York Times	82	90	41	125	251256
6	Conversation	68	69	37	44	44540
7	childrenshealthdefense.org	53	56	99	48	146563
8	Punch	53	66	0	54	5332
9	BBC	51	59	5	87	167008
10	the-sun.com	50	93	9	58	3027
11	Daily Mail	42	47	61	470	4717
12	USA Today	41	44	31	173	50409
13	Conversation	35	37	8	21	3547
14	freightwaves.com	34	126	1	37	632
15	Reuters	33	33	3	70	7849
16	Independent	32	35	23	345	40957
17	NBC News	32	34	36	77	172610
18	Daily Telegraph	30	39	0	130	10028
19	Twitter	30	30	0	30	1155
20	cde.news	29	29	1	29	45

Figure 3 shows Intermedia Agenda Setting in COVID-19 Vaccine Digital Networks structure. This map starting from an actor free network (Media and Organization). A random and actor-free network (nodes) in a network will continue to grow (Barabási & Albert, 1999). The digitally disseminate COVID vaccine information is part of a network structure that connects and effects through hyperlink information that can move from one organization to another. This process, called Intermedia Agenda, refers to the influence of the media agenda against other media (Lopez-Escobar et al., 1998). Intermedia Agenda Settings refer to news transfers made between media (Harder et al., 2017). The research of Intermedia Agenda Settings focuses on measuring the extent of news content moving from one media to another (Atwater et al., 1987). The Intermedia Agenda Settings can occur due to high-paper media affecting and leading conventional media such as radio, television, magazines, and other media. Conventional media often identifies other media with high credibility as opinion leaders (Vliegenthart & Walgrave, 2008).

Density is the extent of existing connections to the absolute number of potential ties in an organization. It is tallied by partitioning the number of existing ties (associations) by the number of potential ties. This action assists with showing how close members are to a network. Density measure is integral to distance across, as both surveys the speed of data stream. The nearer this estimation is to 1. The number density of Intermedia Agenda Setting Covid-19 Vaccine Digital Information Network is 0,007, meaning nodes (organization) who share COVID-19 Vaccine Information the network is not close to each other. Diameter figures the longest distance between two network members. This action demonstrates a network size by ascertaining the number of hubs it takes to get from one side to the next. The diameter value of the Intermedia Agency for COVID-19 Vaccine Digitalization Network means that there are eight steps that

organizations have to go through in order to meet each other from organizations to disseminate COVID-19 Vaccine Information

Modularity helps to determine whether the clusters found represent distinct communities in the network. Higher values of modularity indicates clear divisions between communities as represented by clusters in Netlytic. Low values of modularity, usually < 0.5, suggests that clusters will overlap more; the network is more likely to comprise a core group of nodes. The modularity value of this network is 0.582. The value describes that the network comprises groups overlapping each other in disseminating the information on the COVID-19 vaccine.
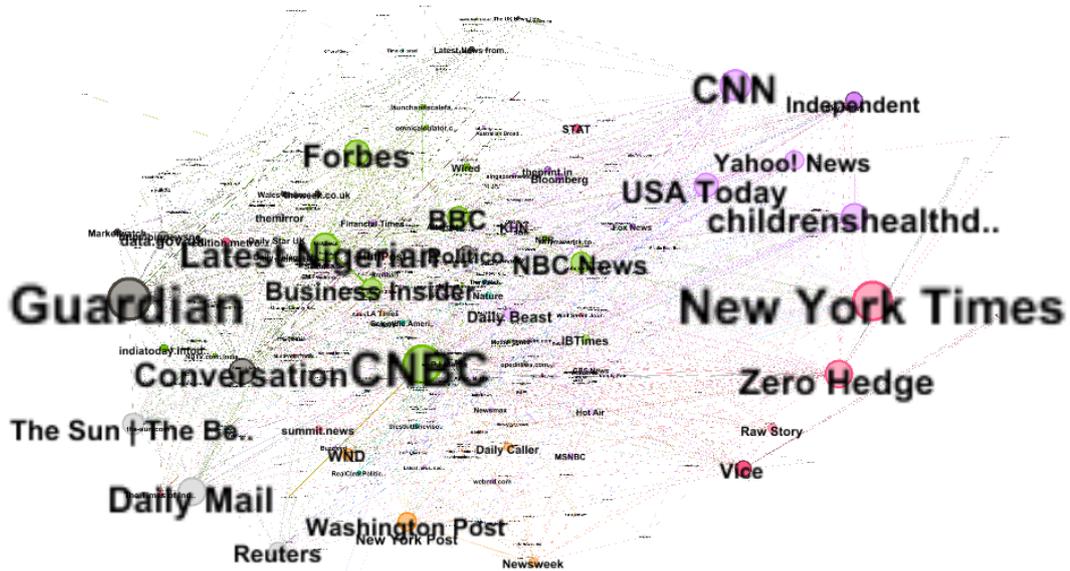

Figure 3. Intermedia Agenda Setting in COVID-19 Vaccine Digital Networks structure.

In a network consisting of a member (node) leading a network, the preference of another member to select leaders in the network is called a preferential attachment. It is a concept to explain the preference for network members to choose leaders in the network structure (Bianconi & Barabási, 2001). This concept also explains that well-formed actors in network structure will continue to be selected by new actors. The Preferential Attachment process in a network occurs when new actors (new node) want to join a networking group. This new actor will choose a previous actor who already has a link before. This process is constantly happening until it forms a networking group with leading actors or central figures attesting to many links (Bianconi & Barabási, 2001).

To find out who is the leader in intermedia agenda-setting COVID-19 Vaccine digital information network, the researcher calculates the number of betweenness centrality and Eigenvector centrality for each node. Table 3 shows the highest number of betweenness centrality, the well-known, and established mainstream media, for instance, Guardian, New York Times, CNBC, and CNN who have the role to become the bridge of interaction in the network.

Table 3. The Highest Betweness Centrality Intermedia Agenda Setting Covid-19 Vaccine Network

Rank	Organization	Betweenness centrality
1	Guardian	0.155136
2	CNBC	0.136393
3	New York Times	0.13482
4	Latest Nigerian News	0.094596
5	childrenshealthdefense.org	0.093421
6	CNN	0.091597
7	Zero Hedge	0.083033
8	Conversation	0.078855
9	Daily Mail	0.069718
10	Forbes	0.067732
11	USA Today	0.067381
12	The Sun	0.048186
13	Washington Post	0.047393
14	BBC	0.046937
15	Reuters	0.046561
16	Business Insider	0.044687
17	Politico	0.042782
18	NBC News	0.039306
19	Independent	0.037251
20	Vice	0.036287

Table 4 the most important media and organization within the network, the researcher calculates a number of Eigenvector centrality. This number shows the most critical node in the network based on the connections between the nodes and the node associated with that anode. Table 6 shows the well-established media, for example, Guardian, CNBC, New York Times, CNN, Daily Mail, and USA Today also have a significant role in the network. The exciting point is anti-vaccine movement media childrenshealthdefense.org also has an essential role in Intermedia Agenda Setting in Covid-19 Vaccine Network.

Table 4. The Highest Eigencentrality Intermedia Agenda Setting Covid-19 Vaccine Network

Rank	Name	Eigencentrality
1	Guardian	1
2	CNBC	0.988838
3	New York Times	0.981928
4	CNN	0.791715
5	Daily Mail	0.783342
6	USA Today	0.676303
7	childrenshealthdefense.org	0.673298
8	NBC News	0.659121
9	BBC	0.657899
10	Forbes	0.644184
11	Independent	0.640568
12	Latest Nigerian News - Nigerian Newspapers - Online Nigeria News	0.613968
13	Conversation	0.583087

14	Business Insider	0.579465
15	Sun	0.573946
16	Zero Hedge	0.563045
17	Yahoo! News	0.520032
18	Reuters	0.499206
19	Washington Post	0.479733
20	Daily Beast	0.414935

This paper also finds out the key person and critical organization who frequently mention it in articles by CLIFF-CLAVIN engine. In table 5, we find out the leader of the country, for example, president of the United States, prime minister of U.K. and India, and also a politician in U.K. and U.S. has mentioned it in the COVID-19 Vaccine stories.

Table 5. Key Person Intermedia Agenda Setting Covid-19 Vaccine Network

Rank	Key Person	Total Count
1	Joe Biden	2802
2	Donald Trump	2727
3	Boris Johnson	1393
4	Matt Hancock	800
5	Narendra Modi	763
6	Anthony Fauci	597
7	Margaret Keenan	232
8	Nadhim Zahawi	229
9	Matt Hancock	227
10	Alex Azar	223
11	Anthony Fauci	219
12	Mike Pence	216
13	Andrew Cuomo	203
14	Moncef Slaoui	194
15	Nancy Pelosi	190
16	Chris Whitty	179
17	Albert Bourla	178
18	Robert Redfield	174
19	Ursula von der Leyen	174
20	Andrew Pollard	174

In table 6 shows Key Organization COVID-19 Vaccine based on mention frequency. In the COVID-19 article, Vaccine companies, such as Pfizer and AstraZeneca also the government institutions, for instance, NHS, FDA, and CDC have become the critical organization for COVID-19 Vaccine Information.

Table 6. Key Organization Intermedia Agenda Setting Covid-19 Vaccine Network

Rank	Organization	Count
1	Pfizer	5874
2	AstraZeneca	1791
3	NHS	1682
4	FDA	1293
5	CDC	925
6	EU	877
7	AstraZeneca	797
8	Reuters	711
9	Oxford University	667
10	Congress	589
11	Food and Drug Administration	587
12	MHRA	575
13	FDA	565
14	Serum Institute of India	559
15	White House	557
16	Oxford	549
17	European Union	534
18	Centers for Disease Control and Prevention	534
19	BBC	513
20	Senate	482

CLIFF-CLAVIN engine also determines the top theme in the COVID-19 Vaccine Information. This can also be seen as Agenda Setting by key organizations and key people who frequently mention it in the COVID-19 Vaccine Information. Agenda Setting is a form of competition for supporters of an issue to get the attention of media professionals, the public, and the policy elite. Agenda Setting illustrates why an issue can appear in the public area and explains how public opinion can be formed. Issues in the World compete with each other for public attention. Public attention to an issue results from mass media exposure through a reciprocal process between stakeholders, media professionals, and the public. Mass media exposure is a form of assessment carried out by the media on an issue with a high news value that affects public attention (Dearing et al., 1996).

Table 7 shows the agenda in COVID-19 vaccine, namely: medicine and health, diseases and conditions, vaccination and immunization, politics and government, drugs (pharmaceuticals) are the main agenda through COVID-19 vaccine stories. The interesting point is about politics. This paper found that the U.S., U.K., and India politic figure have been frequently mentioned in Covid-19 Vaccine articles.

Table 7. T0P 10 Theme Intermedia Agenda Setting Covid-19 Vaccine Network

Rank	Theme	Count
1	Medicine And Health	12744
2	Diseases And Conditions	10982
3	Vaccination And Immunization	10168
4	Politics And Government	1868
5	Drugs (Pharmaceuticals)	1717
6	Medicine And Health	1651

7	Diseases And Conditions	1437
8	Finances	1184
9	Vaccination And Immunization	1183
10	Tests And Testing	952

In terms of network perspective, the paper finds well-established media in the United States has played an essential role in disseminating information media, for instance, Guardian, CNBC, New York Times, CNN, and Daily Mail have become the leader in the Intermedia Agenda-Setting Network of the COVID-19 vaccine. This finding also is the same as the previous study of Intermedia Agenda-Setting that finds well-established media were becoming a leader in the Intermedia Agenda process (Conway et al., 2015; Golan, 2006; Vliegenthart & Walgrave, 2008). Based on the statistic network, this study finds out that meaning nodes (organizations) who share COVID-19 Vaccine Information in the network are not close to each other. There are eight steps that organizations have to go through in order to meet each other from organizations to disseminate vaccine information, COVID-19 vaccines, and containing groups overlapping each other in disseminating the information on the COVID-19 Vaccine.

7.   Conclusion

In summary, global organizations influence COVID-19 Vaccine Information through agendas, such as Medicine and Health, Diseases and Conditions, Vaccination and Immunization, Politics and Government, and Drugs (pharmaceuticals). These agendas are often mentioned in articles containing elite political figures, namely: vaccine companies and government health organizations. The intermedia agenda setting network disseminates this information consists of elite media and well-established media that have the power and effectively disseminate information on the COVID-19 Vaccine, which is interesting, is the emergence of anti-vaccine media that effectively conveys vaccine information narratives. The quality in the network consists of overlapping groups consisting of eight farthest steps for the media to carry out the Intermedia Agenda Setting in COVID-19 vaccine, and the media in COVID-19 information network are not tied to each other.

References

Atwater, T., Fico, F., & Pizante, G. (1987). Reporting on the state legislature: A case study of inter-media agenda-setting. *Newspaper Research Journal*, *8*(2), 53–61.

Barabási, A.-L., & Albert, R. (1999). Emergence of scaling in random networks. *Science*, *286*(5439), 509–512.

Bianconi, G., & Barabási, A.-L. (2001). Competition and multiscaling in evolving networks. *EPL (Europhysics Letters)*, *54*(4), 436.

Buis, L. R., & Carpenter, S. (2009). Health and medical blog content and its relationships with blogger credentials and blog host. *Health Communication*, *24*(8), 703–710.

Chadwick, A. (2014). The hybrid media system: Politics and power. *Public Administration*, *92*(4), 1106–1114.

Conway, B. A., Kenski, K., & Wang, D. (2015). The rise of Twitter in the political campaign: Searching for intermedia agenda-setting effects in the presidential primary. *Journal of Computer-Mediated Communication*, *20*(4), 363–380.

Dearing, J. W., Rogers, E. M., & Rogers, E. (1996). *Agenda-setting* (Vol. 6). Sage.

D'Ignazio, C., Bhargava, R., Zuckerman, E., & Beck, L. (2014). *Cliff-clavin: Determining geographic focus for news articles*.

Golan, G. (2006). Inter-media agenda setting and global news coverage: Assessing the influence of the New York Times on three network television evening news programs. *Journalism Studies*, *7*(2), 323–333.

Harder, R. A., Sevenans, J., & Van Aelst, P. (2017). Intermedia agenda setting in the social media age: How traditional players dominate the news agenda in election times. *The International Journal of Press/Politics*, *22*(3), 275–293.

Hermida, A., Lewis, S. C., & Zamith, R. (2014). Sourcing the Arab Spring: A case study of Andy Carvin's sources on Twitter during the Tunisian and Egyptian revolutions. *Journal of Computer-Mediated Communication*, *19*(3), 479–499.

Langer, A. I., & Gruber, J. B. (2021). Political agenda setting in the hybrid media system: Why legacy media still matter a great deal. *The International Journal of Press/Politics*, *26*(2), 313–340.

Le, T. T., Andreadakis, Z., Kumar, A., Román, R. G., Tollefsen, S., Saville, M., & Mayhew, S. (2020). The COVID-19 vaccine development landscape. *Nat Rev Drug Discov*, *19*(5), 305–306.

Lopez-Escobar, E., Llamas, J. P., McCombs, M., & Lennon, F. R. (1998). Two levels of agenda setting among advertising and news in the 1995 Spanish elections. *Political Communication*, *15*(2), 225–238.

McCombs, M. (2005). A look at agenda-setting: Past, present and future. *Journalism Studies*, *6*(4), 543–557.

Nygaard, S. (2020). Boundary work: Intermedia agenda-setting between right-wing alternative media and professional journalism. *Journalism Studies*, *21*(6), 766–782.

Ognyanova, K. (2013). *Intermedia agenda setting in an era of fragmentation: Applications of network science in the study of mass communication*. University of Southern California.

Perrin, A. (2015). *Social media usage*.

Stern, S., Livan, G., & Smith, R. E. (2020). A network perspective on intermedia agenda-setting. *Applied Network Science*, *5*(1), 1–22.

Su, Y., & Xiao, X. (2020). Mapping the intermedia agenda setting (IAS) literature. *The Agenda Setting Journal. Theory, Practice, Critique*.

Vliegenthart, R., & Walgrave, S. (2008). The contingency of intermedia agenda setting: A longitudinal study in Belgium. *Journalism & Mass Communication Quarterly*, *85*(4), 860–877.

Vonbun, R., Königslöw, K. K., & Schoenbach, K. (2016). Intermedia agenda-setting in a multimedia news environment. *Journalism*, *17*(8), 1054–1073.

Wilson, K., Atkinson, K., & Deeks, S. (2014). Opportunities for utilizing new technologies to increase vaccine confidence. *Expert Review of Vaccines*, *13*(8), 969–977.