

Shifting Narratives: A Corpus-based Discourse Analysis of American Media's Portrayal of China's COVID-19 Response

ZHIYU LIU

Universiti Kebangsaan Malaysia, Malaysia

&

North China University of Science and Technology, China

KESUMAWATI A. BAKAR

Faculty of Social Sciences & Humanities

Universiti Kebangsaan Malaysia, Malaysia

kesuma@ukm.edu.my

ABSTRACT

Given the global interconnectedness, it becomes essential to critically assess how global events are portrayed in the media, as this could influence public understanding, stoke sentiments, and potentially impact international relations. During the COVID-19 pandemic, the portrayal of China's response by the American media became a topic of interest and contention. However, a noticeable gap remains in understanding this portrayal across different pandemic stages. This article examines how American mainstream news media has characterised China's efforts to combat the COVID-19 pandemic over time through a corpus-based discourse analysis. The study employs the analytical methods of n-gram, keyword, and concordance lines in corpus linguistics to investigate the frequency and salience of discourse surrounding COVID-19 in China within American media. The results indicate shifting narratives in portraying China's pandemic response over time, with a noticeable trend towards negative representations. The negative representations are characterised by three themes: the stigmatisation of China, the undermining of China's achievements in combating the pandemic, and the politicisation of the pandemic. The article also indicates the perceived challenges in collaboration between America, China, and the WHO in addressing the pandemic, leading to disagreements and conflicts and impacting global mitigation efforts. This study highlights the critical role media plays in shaping public perceptions and international cooperation during global crises. Additionally, it is important for media outlets, policymakers, and stakeholders to reflect thoughtfully on their narratives, avoiding stereotypical beliefs while taking into account their effects on international relations and global collaboration.

Keywords: COVID-19 in China; American media; narratives; representation; corpus-based discourse analysis

INTRODUCTION

In December 2019, a cluster of unidentified pneumonia cases were reported in Wuhan, China, which quickly gained global attention. After testing and identification, the World Health Organisation (WHO) named the disease COVID-19. Subsequently, it rapidly transcended China's borders, exerting a far-reaching impact on the global landscape (Chakraborty & Maity, 2020; Halim et al., 2021; Tan et al., 2020). The emergence and spread of the pandemic have challenged the current world order (Zhao, 2021), and America's information deficit with China exacerbated the complicated China-U.S. relations, leading to disputes between the two nations (Moser, 2020). Amidst this global health crisis, American mainstream media's portrayal of the pandemic, especially concerning China, became a subject of interest and contention. While the media's primary role is to disseminate accurate information and foster unity in combating the virus, certain outlets, influenced by the "America First" doctrine, took a critical stance (Jia & Lu, 2021). "America First" doctrine persistently places America's interests above those of anyone or anything else (Cullen & Graham, 2020). In the context of COVID-19, this approach led to a distrustful and

often critical view of foreign countries, particularly China, where the virus was first identified. For instance, the use of terms such as “Wuhan Virus” or “Chinese Virus” not only deviated from the objective presentation of facts but also appeared to cast aspersions on China’s role in the pandemic’s genesis (Jia & Lu, 2021).

Understanding media representation is pivotal as it shapes public perceptions, drives policymaking, and influences diplomatic relations. Research has delved into these portrayals. For instance, Lin et al. (2020) explored the Chinese Internet media’s narrative, highlighting its emphasis on the disease’s spread and governmental countermeasures. Similarly, Acharya and Porwal (2020) contrasted international media portrayals and observed American media’s tendency to critique China’s response, while Chinese media underscored their government’s containment efforts. Also, in their study, Ju et al. (2023) investigated how both Chinese and American media portrayed Chinese COVID-19 vaccines. They found that American media tended to emphasise conflict and scepticism, framing the discourse around terms like “diplomatic tool” and “competition”, ultimately contributing to the depiction of China as self-centred and competitive. Nonetheless, despite the initial critical portrayals observed in American media, as the COVID-19 situation progresses in China, the focus and narrative in American reporting also evolved (Lou, 2022; Mustafa et al., 2021). However, there remains a noticeable gap in our comprehension of how American media’s portrayals of China’s pandemic response have evolved over different stages of the crisis. Addressing this issue is conducive to forming a more balanced and comprehensive understanding of China’s pandemic response. Corpus-based discourse analysis facilitates a large-scale and systematic analysis of this issue, offering deeper insights into the patterns, trends, and recurring themes within media texts (Baker, 2006; McEnery & Hardie, 2012).

The objective of this study is to conduct a corpus-based discourse analysis of American mainstream media’s coverage of China’s COVID-19 response. This analysis spans two years, encompassing different stages of COVID-19 development in China. The study has two primary objectives: (1) to identify the frequent words and recurring discursive themes in American news reports on China’s COVID-19 response during different stages, and (2) to examine the diachronic changes that occurred in these words and themes over time and explain the implications.

COMBATING COVID-19 STAGES IN CHINA AND AMERICA

Following the emergence of COVID-19, China swiftly responded, but it came at a cost of significant sacrifices. *Fighting COVID-19: China In Action*, a white paper issued by the State Council of China, outlines the five stages of China’s battle against COVID-19: (1) swift response to the public health emergency (December 27, 2019-January 19, 2020); (2) initial progress in containing the virus (January 20, 2020-February 20, 2020); (3) newly confirmed domestic cases on the Chinese mainland dropping to single digits (February 21, 2020-March 17, 2020); (4) Wuhan and Hubei-an initial victory in a critical battle (March 18, 2020-April 28, 2020); (5) ongoing prevention and control (Since April 29, 2020) (The State Council Information Office of China, 2020). Based on these details, this study divides China’s journey of anti-pandemic into three stages: (1) the development stage, from the first reported COVID-19 case (December 27, 2019) to the day before Wuhan lockdown (January 22, 2020); (2) the blocking stage, from Wuhan lockdown (January 23, 2020) until the day before Wuhan’s victory against COVID-19 (April 27, 2020); (3) the normalised stage, from Wuhan’s victory (April 28, 2020) to December 27, 2021, determined by the researchers for data collection to build a two-year diachronic corpus, a time-series corpus of an extended period (Tiun et al., 2020). These divisions provide a more manageable framework

and enable a clearer analysis of overarching trends and discursive changes over time, avoiding the detailed division that could obscure broader patterns.

While this study focuses on the portrayal of China's response to COVID-19 in American media, it's essential to acknowledge the multifaceted challenges and stages America itself encountered in combating the pandemic. Initially, the U.S. faced widespread criticism for its perceived underestimation of the virus's impact, resulting in delayed response and shortages of essential medical supplies (Best et al., 2021). As the pandemic progressed, America underwent various stages — ranging from stringent lockdowns to phased re-openings, debates over mask mandates, and the rapid development and distribution of vaccines (Zhang & Warner, 2020). Each stage was met with its own set of challenges, controversies, and media narratives. The federal nature of the U.S. government also meant varied responses across states, leading to diverse outcomes and reactions (Kettl, 2020). Recognising and understanding these stages not only illustrates the complexity of pandemic responses but also underscores the importance of viewing media representations in their broader context. By paralleling America's challenges with those faced by China, we strive for a more balanced and objective lens in analysing the media narratives in focus.

LITERATURE REVIEW

DISCOURSE STUDIES ON THE COVID-19 PANDEMIC IN CHINA

The global attention to the COVID-19 pandemic has spurred extensive research into its various aspects and implications. As the pandemic has impacted all aspects of life, there are diverse topics related to COVID-19 discourse, such as nurse-as-hero discourse, bereavement discourse, and discourse on obesity during COVID-19. One of the most common research perspectives is the Chinese or foreign media's discursive construction of COVID-19 in China during a specific period from various research angles. For example, Yang and Chen (2021) analysed Chinese official media discourse in the context of COVID-19, demonstrating a paradox of globalism and nationalism.

Furthermore, more recent studies focus on American media's discursive construction of COVID-19 in China. Liu (2021) revealed China's image in American media and uncovered the relationship between diachronic discourse change and political, social, and ideological backgrounds using corpus-based Usage Fluctuation Analysis (UFA). Lou (2022) investigated the China-related coverage of COVID-19 in Chinese and American media in different periods and their respective discursive strategies. While both of these studies adopt a diachronic perspective, they share a common limitation — namely, the relatively short period of their diachronic analyses (one year and three months, respectively). This limited duration hinders the ability to offer a thorough understanding of how China was portrayed throughout the COVID-19 pandemic in the American press and neglects the variations across different stages of COVID-19 development in China. Therefore, this study intends to further the diachronic investigation for a more comprehensive finding, with a unique focus on American mainstream media's discursive construction of China's COVID-19 response at the different stages.

CORPUS-BASED DISCOURSE ANALYSIS

This study adopts corpus-based discourse analysis to examine China's COVID-19 response in American media. Although discourse analysis stands out in linguistics, the introduction to the Corpus Linguistics (CL) approach has ushered in a new dimension. CL specialises in the large-scale investigation of language, using computer-aided techniques to delve into vast repositories of written or spoken content (McEnery & Hardie, 2012). Yet, the merits of corpus-based discourse analysis go beyond its technical prowess.

First, corpus-based discourse analysis helps mitigate researcher bias. Traditional discourse analysis is criticised for the selection of non-representative or fragmented texts, which may lead to biased interpretations. In contrast, corpus-based analysis, known for its quantitative approach, ensures that the analysis is based on a balanced selection of texts, reducing issues of representation and bias (Baker et al., 2008). Second, corpus-based discourse analysis allows researchers to monitor the evolution of discourses. Discourses are not static; they change with shifts in society, politics, and culture. By using diachronic corpora or comparing multiple corpora from different periods, researchers can document how discourses progress or transform over time. (Baker, 2006). This study builds three sub-corpora from three different stages of COVID-19 in China to identify its discursive changes over time in American media. Thirdly, the integration of corpus-based methods with discourse analysis represents a form of methodological triangulation. This fusion brings several advantages, such as enhancing the validity of hypotheses, providing a solid interpretative framework for findings, and allowing researchers the flexibility to explore unexpected findings (Baker, 2006).

METHODOLOGY

DATA COLLECTION

The specialised corpus contains texts of a particular type, such as newspaper editorials, academic articles, or personal advertisements (Bakar, 2014; Hunston, 2002). The specialised corpus in this study consists of news reports on COVID-19 in China sourced from mainstream American newspapers. LexisNexis, an online database, was utilised to collect China-related news reports from *The New York Times*, *Los Angeles Times*, and *The Washington Times*. These newspapers are highly authoritative and influential in America. In terms of political biases, *The New York Times* and *Los Angeles Times* are rated as Lean Left, while *The Washington Post* is rated as Lean Right (AllSides, 2023). Therefore, the collected texts can cover the different voices and beliefs of America.

The portrayal of COVID-19 in China by the American media has evolved over different periods (Lou, 2022). A diachronic approach allows us to trace the shifts in narratives, ensuring a comprehensive understanding of the transformation of discourse. The time for the specialised corpus is from December 27, 2019, to December 27, 2021, covering three stages of COVID-19 in China. The entered search term is "China's or Chinese and COVID-19 or coronavirus disease or pandemic or epidemic", which guarantees the inclusion of topic-related texts. Furthermore, to ensure the research's reliability, a crucial step was taken: text clean-up. Every article in the corpus was carefully examined to exclude any texts that only mentioned COVID-19 in China in passing. Additionally, any URLs, non-English words, and basic elements of articles, such as section, length, and byline, were also removed.

Following the division principle mentioned earlier, the diachronic corpus is organised into sub-corpora based on significant timelines or events. Each sub-corpus represents a unique stage of China’s combat against COVID-19, allowing for a segmented, time-based analysis.

TABLE 1. Basic information of three sub-corpora

Corpus	Starting Time	Ending Time	Articles	Types	Tokens
development stage corpus	Dec. 27, 2019	Jan. 22, 2020	18	2614	21332
blocking stage corpus	Jan. 23, 2020	Apr. 27, 2020	89	10452	109763
normalised stage corpus	Apr. 28, 2020	Dec. 27, 2021	95	10642	111792

As seen in TABLE 1, the size of the development stage corpus is smaller than the rest. The possible reasons are that the development stage only lasts 27 days, and the focus of news at this stage is also limited. This situation is not uncommon in corpus construction and is acceptable since Baker (2006, p. 28) suggests that “One consideration when building a specialised corpus in order to investigate the discursive construction of a particular subject is perhaps not so much the size of the corpus, but how often we would expect to find that subject mentioned within it.” In other words, the quality (content of the data) takes equal or more precedence over issues of quantity.

ANALYTICAL METHODS

Corpus-based discourse analysis combines both quantitative and qualitative research traditions. By using large volumes of naturally occurring texts (corpus), we can identify patterns in language use that might go unnoticed in smaller samples. To analyse the corpus, we utilised AntConc (4.1.0), a corpus analysis toolkit with multiple functions such as n-gram, keyword, and concordance. The three sub-corpora were analysed respectively from the perspectives of n-gram lists and keyword lists for a diachronic study.

N-gram lists, which provide a list of words in a corpus along with their frequencies and percentage contributions (Baker, 2006), were analysed to provide an overview of American mainstream media’s framing of COVID-19 in China during three stages. By examining n-grams, which are continuous sequences of n items from a given sample of text or speech (Manning & Schütze, 1999), we observed that the majority of 1-grams and 2-grams consist of function words like “of” and “in”, which do not provide insights into the frequent themes of each sub-corpus. However, we identified numerous 3-grams that consist of content words (examples include “World Health Organisation” and “the United States”, as shown in TABLE 2). This aligns with Speer’s (2018) findings, which substantiate that 3-grams can capture more semantic information in empirical research. Consequently, for this study, we opted to focus on 3-grams.

Keyword lists provide a measure of salience by comparing the frequencies in one word list against another to decide which words occur more often in word list A compared to word list B and vice versa (Baker, 2006). Before generating keyword lists, we had to determine the reference and observed corpora. In this case, when one of the three sub-corpora was examined as the observed corpus, the other two sub-corpora were combined as the reference corpus. The validity of this similar method has been verified in one study by Baker et al. (2020). By categorising the keywords in the sub-corpora into different discursive themes based on their semantic fields, we were able to summarise the “aboutness” of each sub-corpus. This approach enabled us to identify the salient features of the observed corpus and indicate the changes in COVID-19 discourse during

three stages.

The utilisation of n-gram lists and keyword lists served as effective tools to fulfil our two research objectives. To delve deeper into our analysis, we extended our examination to include concordance lines for specific high-frequency words and keywords, thereby expanding line and text contexts for qualitative analysis. Barlow (2004, pp. 204-221) defines concordances as transformations of a text, providing analysts with the opportunity to explore diverse perspectives within a text. Consequently, the scrutiny of concordance lines aligns with our approach to conducting a close analysis of COVID-19 discourse, which is consistent with the qualitative analytical methods employed in discourse analysis.

THEMATIC ANALYSIS

In our initial coding stage, we identified and coded specific segments of the articles that pertain to different aspects of the COVID-19 pandemic in China. Similar codes were grouped to form initial themes that capture broader topics or issues emerging from the articles. We next reviewed and refined the generated themes, ensuring they accurately represent the range of topics covered in the articles and adequately capture the key dimensions of the COVID-19 pandemic in China, such as illness, China-U.S. relations, and international relations. Finally, a thematic matrix was created to organise and present the identified themes along with the keywords.

FINDINGS AND DISCUSSION

3-GRAM LIST ANALYSIS OF THE THREE SUB-CORPORA

3-gram lists of the three sub-corpora were obtained through the n-gram technique. We selected the top 20 types from each list and consolidated them into a single table (referred to as TABLE 2). In this table, we presented these 3-grams along with their respective raw frequency (RF) and normalised frequency (NF) for clarity and ease of comparison. This presentation allows us to reveal the most frequently occurring 3-grams in the coverage of China's COVID-19 response, particularly highlighting variations across different stages of the pandemic.

TABLE 2. Top 20 types in 3-gram lists of the three sub-corpora

Rank	Development Stage Corpus			Blocking Stage Corpus			Normalised Stage Corpus		
	Type	RF	NF	Type	RF	NF	Type	RF	NF
1	of the virus	29	13.59	the United States	151	13.76	the United States	148	13.24
2	World Health Organization	27	12.66	the U S	101	9.20	The U S	146	13.06
3	that the virus	27	12.66	of the virus	72	6.56	of the virus	84	7.51
4	Lunar New Year	23	10.78	the Chinese government	63	5.74	that the virus	73	6.53
5	the new virus	22	10.31	of the outbreak	60	5.47	of the coronavirus	69	6.17
6	New York Times	19	8.90	of the coronavirus	57	5.19	World Health Organization	68	6.08
7	The New York	19	8.90	World Health Organization	55	5.01	W H O	60	5.37

8	human to human	19	8.90	of China s	50	4.56	of China s	57	5.10
9	the Chinese government	18	8.44	New York Times	46	4.19	Institute of Virology	56	5.01
10	the Lunar New	18	8.44	in Hong Kong	43	3.92	The Washington Times	56	5.01
11	York Times January	17	7.97	the coronavirus outbreak	43	3.92	the Wuhan Institute	56	5.01
12	in the city	17	7.97	the country s	43	3.92	the World Health	54	4.83
13	The World Health	16	7.50	South China Sea	42	3.83	the Chinese government	50	4.47
14	city of Wuhan	16	7.50	of the world	42	3.83	Chinese Communist Party	50	4.47
15	more than people	16	7.50	The Washington Times	41	3.74	the origins of	49	4.38
16	of the outbreak	16	7.50	The New York	40	3.64	the Trump administration	48	4.29
17	the spread of	16	7.50	South China	40	3.64	the Wuhan Institute	47	4.20
18	the virus could	16	7.50	Chinese Communist Party	38	3.46	the country s	42	3.76
19	to human transmission	16	7.50	In the United	38	3.46	the W H	41	3.67
20	cases of the	15	7.03	around the world	37	3.37	origins of the	39	3.49

In the development stage, media coverage predominantly centred on the nascent virus first identified in Wuhan, juxtaposed with the looming threat of the world’s largest annual mass migration during the Chinese Lunar New Year. The possibility of human-to-human transmission, confirmed later, added to the narrative’s complexity. During this initial stage, the WHO monitored the situation, praised China’s response to the outbreak, and prepared to mount a broader response. American media, in its representation, appeared to offer a reasonably balanced framing of COVID-19’s onset in China. However, deeper analyses reveal implicit ideologies within the examined types. For example, when referencing “the Chinese government”, statements such as “The Chinese government has not said which animals, nor has it disclosed other details about the outbreak” (*The New York Times*, January 9, 2020) subtly paint a picture of opaqueness and lack of transparency. The use of “the spread of” in contexts like “The delay in reporting the spread of the disease was attributed to technological challenges, but also bureaucratic ones” (*The New York Times*, January 21, 2020) suggests a mix of inefficiency and potential cover-ups. Finally, the phrase “cases of the” in statements like “Mr Hui’s stepmother was never formally tested for the virus, and he was concerned that the Wuhan government was underreporting cases of the illness” (*The New York Times*, January 22, 2020) alludes to doubts regarding China’s reported figures, emphasising scepticism.

During the blocking stage, while the media continued its analysis of the virus’s origin, transmission, and purported mismanagement by the Chinese government, subtle shifts in narrative took root. Firstly, while the concordance lines of most 3-grams indicated an overall negative tone in American media coverage (as illustrated in the examples in FIGURE 1), it’s worth noting

instances of reports that praised China’s response to the pandemic. For instance, “China detected the outbreak, isolated the virus, sequenced its genome and shared the information with the WHO and other countries in record time.” (*The New York Times*, February 28, 2020) This statement acknowledged China’s rapid genomic sequencing of the virus, implying recognition of China’s scientific capabilities. However, at the same time, there were insinuations about the WHO being unduly influenced by China, along with mentions of the South China Sea, which interconnect the pandemic discourse with broader geopolitical tensions. Finally, the most conspicuous aspect in the blocking stage was the high frequency of “The United States” and “The U.S.,” which usually co-occurred with the word China. The concordance lines indicated deteriorating relations and tension between the two countries due to the politicisation of the virus. The specific examples are as follows:

The move comes as a war of words between **the United States** and China over the coronavirus pandemic intensifies.

(*The New York Times*, April 24, 2020)

“We call on **the U.S.** to immediately recalibrate its China policy, putting aside geopolitics and work with China to combat the fatal virus,” the paper said.

(*The Washington Times*, March 24, 2020)

File	Left Context	Hit	Right Context
1	Blocking ...erate with one another since everyone is facing the same danger. Not this time.	The United States	and China have turned the pandemic into a battle zone in their
2	Blocking ...R. Pompeo on Wednesday released a statement criticizing Beijing for the move.	The United States	condemns China's expulsion of three Wall Street Journal foreign correspondents,"
3	Blocking ... Chinese government and internet company Tencent to facilitate PPE deliveries.	The United States	Project Airbridge, a public-private partnership led by President Trump's advisor

File	Left Context	Hit	Right Context
1	Blocking ...oubt on Beijing's message that it has brought the coronavirus crisis under control.	The Chinese government	has always tried to keep the Western press on a short leash,
2	Blocking ...prominent critics: the law professor Xu Zhangrun and the legal expert Xu Zhiyong.	The Chinese government	has also been quick to address (some) international criticism. For example, in
3	Blocking ... Those countries have imposed virtual travel bans to China and evacuated citizens.	The Chinese government	also has denounced incidents of anti-Chinese hostility linked to the epidemic. "

File	Left Context	Hit	Right Context
1	Blocking ... and raced around the world. China was criticized for initially underreporting the severity	of the outbreak	but has since held itself up as an indispensable power in helping
2	Blocking ...mber of infections and deaths, and Chinese-style authoritarianism silenced early reports	of the outbreak	costing China and the world valuable time to stop the coronavirus' spread.
3	Blocking ...ence surrounding these apparent reinfections is further complicated by China's handling	of the outbreak	which since January has been marred by faulty testing procedures and questionab

File	Left Context	Hit	Right Context
1	Blocking ... China hid information about some infections and deaths, minimizing the apparent scale and lethality	of the coronavirus	outbreak. China sent a warning flare Feb. 12 when it reported mor
2	Blocking ... reverse its decision to use the Fai Ming Estate public housing block to quarantine carriers	of the coronavirus	Lam said the damage caused by protesters there was so extensive
3	Blocking ... moves in the South China Sea and other factors. But the human and economic toll	of the coronavirus	has introduced a white-hot element into the dynamic between th

FIGURE 1. Concordance lines of four 3-grams

The normalised stage perpetuated some themes from the blocking stage, particularly the portrayal of the Chinese government and the recurring mentions of the U.S. and the virus, which can be inferred from the remaining top three types of “the United States”, “The U.S.” and “of the virus” with high RF and NF. This suggests that the media maintained its focus on the efforts of the

United States in combating the virus and the intricate relations between America and China. The negative portrayal of the Chinese government and the Chinese Communist Party, along with America's accusations against the WHO for its perceived support of China in the pandemic response and inquiries into the virus's origin, remained prominent. However, notable shifts also emerged. While the media acknowledged the efficient control of the virus in China, sharp contrasts with the situation in America became evident. At this point, China was depicted as having the virus well under control (Zhu et al., 2022), while the cases in the U.S. continued to accelerate or were even described as being out of control (Tanne, 2020). Additionally, speculations about the virus's origin, particularly attributions to the Wuhan Institute of Virology without substantial proof, unveiled deeper ideological undercurrents and suspicions.

China's lead could widen further in the months to come. It has almost no local transmission **of the virus** now, while the United States and Europe face another accelerating wave of cases.
(The New York Times, October 18, 2020)

The Republicans at the event said mounting evidence suggests the virus is man-made and likely originated from the Wuhan **Institute of Virology** in Wuhan, China.
(The Washington Times, June 24, 2020)

In essence, while n-gram analyses offer surface-level insights into media framing, understanding the ideological implications necessitates a deeper look into context, phrasing, and juxtapositions. These phrases, when unpacked, reveal layers of sentiment, bias, and subtle narrative constructions that shape the audience's perceptions of China's COVID-19 response. Nevertheless, it is crucial to acknowledge that the transition of discourse between the blocking stage and the normalised stage does not exhibit substantial significance. Examining word frequency alone is insufficient for a diachronic study, as certain words may maintain high frequency across multiple corpora. Hence, it becomes necessary to complement the n-gram analysis with a keyword analysis, enabling a more precise identification of distinctions among the sub-corpora.

KEYWORD ANALYSIS OF THE THREE SUB-CORPORA

In the preceding section, the reference corpora and keyword analysis were described. We obtained three lists of keywords of the three observed sub-corpora. There are 155 keywords for the development stage corpus, 32 keywords for the blocking stage corpus, and 73 keywords for the normalised stage corpus. Keywords with no explicit semantic meaning in the context of this study, such as "I" and "said" were removed. Finally, we retained 41, 16, and 38 keywords, respectively. The retained keywords were further categorised into different discursive themes based on their semantic fields, and three thematic matrices were created with each type's rank and log-likelihood, which help identify and rank words or phrases that are statistically significant in distinguishing one corpus from another (McEnery & Hardie, 2012).

TABLE 3. Discursive themes of the keywords in the development stage corpus

Discursive Themes	Related Types (Rank, Log-likelihood)
illness	illness (1, 197.52), SARS (2, 136.07), people (3, 131.3), cases (5, 118.68), pneumonia (7, 105.31), respiratory (11, 80.77), fever (14, 74.11), spread (18, 71.2), pneumonialike (20, 65.66), cause (21, 64.85), outbreak (22, 64.54), patients (26, 58.87), breathing (31, 52.82), symptoms (32, 52.8), virus (36, 49.97), infected (40, 44.68), coronaviruses (44, 42.72), transmission (49, 39.42), coughing (84, 26.59), killed (153, 17.87)
time & place	Wuhan (4, 128.05), city (12, 78.76), New (15, 72.71), holiday (19, 68.08), Korea (24, 63.75), Lunar (29, 54.86), Year (34, 51.36), Thailand (43, 42.88), airports (53, 35.16), Festival (94, 24.38), Spring (94, 24.38), Seoul (96, 24.33), Hong (114, 21.15), Kong (111, 22.02), Dec. (119, 20.38), Francisco (143, 18.67), Guangdong (149, 18.27)
government & organization	commission (6, 114.26), authorities (10, 84.39), government (110, 22.17), broadcaster (150, 18.21)

Keywords in the development stage corpus highlight three discursive themes: illness, time and place, and government and organisation. The most evident theme is the introduction to the virus, including its outbreak time and range of influence. The virus was identified after several cases of a new pneumonia-like illness were found in Wuhan. It was later confirmed that the illness was caused by a new coronavirus similar to SARS, which has symptoms like fever, hard breathing, and coughing and can even be fatal. Due to the special outbreak time — the Chinese Lunar New Year Holiday, there was a high risk of virus spread and human-to-human transmission. Subsequently, many cases were found in Guangdong province, China, and other foreign countries such as Korea, Thailand, and America. The theme of government and organisation reveals that the Chinese central government and local health commissions are the primary institutions fighting the virus, although negative reports are frequently identified. Chinese official broadcasters also play a crucial role in updating the public about anti-virus progress and encouraging collective efforts.

Researchers in China have “initially identified” the new virus, ... the state **broadcaster**, China Central Television, said on Thursday.

(*The New York Times*, January 8, 2020)

The outbreak “must be taken seriously”, and every possible measure should be taken to contain it, according to the state **broadcaster** CCTV.

(*The New York Times*, January 21, 2020)

TABLE 4. Discursive themes of the keywords in the blocking stage corpus

Discursive Themes	Related Types (Rank, Likelihood)
blocking of the virus	epidemic (1, 110.74), ship (3, 73.98), Hubei (4, 71.09), quarantine (6, 50.58), numbers (7, 39.1), cruise (10, 30.184), infections (11, 29.73), foreigners (12, 27.84), Africans (13, 26.43), deaths (17, 23.38), quarantined (19, 22.42)
U.S.-China relations	mainland (25, 21.04), U.S. (28, 20.65), name (27, 20.72), protest (28, 20.65), nationalism (32, 20.49)

In the second stage, American media’s attention shifted towards Chinese efforts to block the transmission of the virus and the impact of COVID-19 on U.S.-China relations. The Chinese government’s decision to lockdown Wuhan and Hubei provinces marked a new phase of anti-epidemic efforts (The State Council Information Office of China, 2020). Keywords such as ship, quarantine, cruise, foreigners, and Africans indicate the implementation of strict traffic controls and quarantine measures in China.

After locking down Wuhan and most of Hubei province on January 23, the Chinese authorities **quarantined** at-risk people before they tested positive or exhibited symptoms to reduce further spread.

(Los Angeles Times, April 9, 2020)

Additionally, China enforced a strict immigration and residence policy for foreigners. However, the media sometimes exaggerated and over-interpreted these policies, creating an atmosphere of xenophobia in China. For instance, in one concordance line of the keyword foreigners, the use of the word “evict” was unwarranted.

Now that the pandemic is raging outside China’s borders, **foreigners** are being shunned, barred from public spaces, and even evicted.

(The New York Times, April 16, 2020)

The use of keywords related to numbers, infections, and deaths reveals a notable aspect of how America portrayed the COVID-19 situation. The implementation of strict and effective measures led to a gradual reduction in the number of infections and deaths, and there were even some days with no new reported cases or deaths. This echoes the effectiveness and praises of China’s anti-pandemic measures revealed from the 3-gram list analysis.

But the number of new **infections** in China has been steadily dropping, giving officials in the country confidence that the extraordinary measures have been effective in blunting the virus’s spread.

(The New York Times, February 25, 2020)

On Monday, the city of Wuhan reported no new **deaths** from coronavirus, joining the rest of mainland China, which has not recorded a COVID-19 death since March 31, according to Reuters.

(The Washington Times, April 8, 2020)

The final significant theme centres on the discourse surrounding U.S.-China relations. Although only five keywords were identified, they shed light on the contentious relations between the two nations, with a specific emphasis on disputes related to the nomenclature of the virus and protests regarding each other’s statements. American media frequently employed terms like “China” or “Wuhan” to describe the virus instead of using its official designation, COVID-19, as designated by the WHO. This practice reveals a form of stigmatisation against China and has resulted in disagreements and vehement condemnations from the Chinese government (Ministry of Foreign Affairs of the People’s Republic of China, 2020).

Mr Trump told reporters that he was attaching “China” to the **name** of the virus to combat a disinformation campaign promoted by Beijing officials that the American military was the source of the outbreak.

(The New York Times, March 19, 2020)

The State Department lodged an official **protest** with Chinese Ambassador Cui Tiankai last week over the charge, ... Both President Trump and the State Department official on Wednesday defended the use of the terms “Chinese virus” and “Wuhan virus” to describe the pandemic, denying it was a racist “dog whistle.”

(The Washington Times, March 19, 2020)

American media attributes China’s effective prevention and control over COVID-19 to nationalism with negative qualifiers to attack swelling nationalism in China and its potential risks.

Foreigners are not the only targets of China’s swelling **nationalism**.

(The New York Times, April 16, 2020)

In the short term, **nationalism** may be useful to the central government as it seeks to quell lingering discontent over its early attempts to play down the outbreak.

(The New York Times, April 17, 2020)

TABLE 5. Discursive themes of the keywords in the normalised stage corpus

Discursive Themes	Related Types (Rank, Likelihood)
vaccination	vaccine (2, 154.89), vaccines (6, 93.85), Sinovac (56, 24.83), Sinopharm (63, 23.28), vaccination (68, 21.73), trials (31, 36.92), doses (49, 26.38)
source of the virus	lab (1, 184.4), origins (3, 114.7), investigation (7, 85.9), WIV (9, 79.16), leak (10, 78.54), origin (20, 55.59), virology (21, 52.43), institute (23, 41.23), samples (24, 39.93), laboratory (29, 37.79), theory (32, 36.34), inquiry (34, 35.7), evidence (38, 31.86), probe (43, 29.49), intelligence (17, 60.98)
personage	Biden (4, 99.11), Trump (36, 35.41), Xi (42, 30.14), Shi (16, 61.68), Stewart (68, 21.72), Embarek (43, 29.49)
international relations	India (5,94.34), India (26, 38.8), Beijing (28, 37.9), Australia (35, 35.46), Quad (47, 27.93), Republicans (64, 23), Belt (48, 27.8), Initiative (73, 20.46), sanctions (37, 34.07), military (58, 24.76)

American media coverage in the normalised stage focuses on four themes: vaccination, source of the virus, personage, and international relations. Analysis of the vaccination theme reveals that China has successfully developed COVID-19 vaccines after multiple and strict clinical trials. Vaccines produced by Sinovac and Sinopharm, two major Chinese vaccine manufacturers, are widely accepted by the international community, resulting in numerous vaccine orders and donations to countries in need. However, examining the concordance lines revealed a notable trend of defaming or negating the efficacy of Chinese vaccines.

By early January, the two major Chinese **vaccine** makers, **Sinopharm** and **Sinovac**, had sold overseas or received international orders for more than 800 million doses.

(The New York Times, January 24, 2021)

Some nations that used Chinese-produced **vaccines** have grumbled their effectiveness does not seem as powerful as the messenger-RNA ones used and donated by the U.S.

(The Washington Times, December 1, 2021)

The second important discursive theme in the normalised stage is the source of the virus, accounting for approximately one-third of the keywords. American authorities have consistently put forth the lab-leak theory, claiming that the novel coronavirus was leaked from the Wuhan Institute of Virology (WIV), and tried to publicise this theory to the world. However, despite ongoing investigations by China, the U.S., and the WHO, there is still no substantial evidence that the virus originated from a Chinese lab. Many organisations and individuals have expressed scepticism towards America's repeated assertion, and China has responded by denouncing America's argument as politically and ideologically motivated.

The Chinese Communist Party-affiliated Global Times quoted a source close to the lab as saying, "The U.S. government has never provided one piece of verifiable **evidence** to support this hype about the coronavirus being leaked from the lab."

(The Washington Times, February 4, 2021)

Coauthor Robert F. Garry of Tulane Medical School told several colleagues during a recent webcast: "Our conclusion that it didn't leak from the lab is even stronger today than it was when we wrote the paper." What remains of the **lab leak theory** are half-truths, misrepresentations, and tendentious conjecture.

(Los Angeles Times, June 6, 2021)

China has struck back aggressively, arguing that attempts to link the **origins** of the virus to a lab were politically motivated and suggesting that the virus might have come from abroad.

(Los Angeles Times, July 16, 2021)

The discursive theme of personage can be divided into two subcategories: heads of state and distinguished individuals. Heads of state include American President Trump, President Biden, and Chinese President Xi Jinping. Both the Trump and Biden administrations emphasised the lab leak theory and accused China of misinformation while indicating Xi's government's failure to contain COVID-19.

The **Trump** administration and many private critics say China's government provided false information about the disease outbreak, hid its infectiousness rates from other countries, and allowed global travel from Wuhan that helped spark the pandemic.

(The Washington Times, May 21, 2020)

That's why the **Biden** administration must declassify what it knows about the Wuhan lab and Beijing's attempts to cover up the origin of the pandemic.

(The Washington Times, April 23, 2021)

It wasn't that long ago that **Xi's** government was potentially facing a crisis of legitimacy because of the failure to contain COVID-19.

(Los Angeles Times, July 25, 2020)

Notable figures in this context included Dr Shi Zhengli, a prominent Chinese virologist affiliated with the WIV, Jon Stewart, a renowned American comedian who formerly hosted "The Daily Show", and Peter Ben Embarek, a WHO expert specialising in food safety and animal diseases. Dr Shi faced allegations of being responsible for the virus's accidental release during her experiments, an accusation she vehemently denied (Qiu, 2022). In contrast, both Stewart and Embarek rejected the claim that the virus originated from a Chinese laboratory, contradicting the unsubstantiated accusations put forth by the American government.

"... Oh, you know who we could ask? The Wuhan novel respiratory coronavirus lab. The disease is the same name as the lab! That's just a little too weird, don't you think?" Mr. **Stewart** said.

(The Washington Times, July 21, 2021)

As for the lab theory, **Embarek** said the expert team had rejected the possibility after a visit and extensive discussions with the lab researchers about their past and present experiments.

(Los Angeles Times, February 10, 2021)

The discursive theme of international relations is particularly prominent. Notably, the co-occurrence of keywords such as India, Australia, Republicans, and Beijing brings to mind the Quad, a coalition comprising the United States, Australia, Japan, and India, which aims to advance America's Indo-Pacific strategy and contain China (Smith, 2021). Through concordance analysis, we have identified numerous instances highlighting discords and conflicting relations between China and the Quad members in the context of the COVID-19 pandemic. The following are the top 15 concordance lines of the keyword Indian and an illustrative example of conflict relations.

File	Left Context	Hit	Right Context
2 Norma...	of its lending. One country Beijing has approached is the Maldives, an	Indian	Ocean archipelago that has struggled to keep up with payments on \$3
3 Norma...	the Indo-Pacific and in Europe," said Nirupama Menon Rao, a former	Indian	ambassador to Beijing and Washington. "Some of the hesitations and China-
4 Norma...	along the disputed Himalayan border that led to a brawl in which 20	Indian	soldiers and an unknown number of Chinese were killed -- the deadliest
5 Norma...	the deadliest clash between the neighbors in nearly half a century. The	Indian	government responded with a ban on dozens of Chinese smartphone apps,
6 Norma...	in dozens of Chinese smartphone apps, but unconfirmed reports in the	Indian	media this month suggested a more provocative step could be coming:
7 Norma...	formally opposed. The Quad had its origins during the response to the	Indian	Ocean tsunami more than a decade ago but fell apart when
8 Norma...	l nibble away at territory," said Sudarshan Shrikhande, a former head of	Indian	naval intelligence. The Quad "may not be against China," he added, "
9 Norma...	airspace. Chinese troops have had deadly clashes in recent months with	Indian	soldiers along a disputed border. Xi's reorganized security forces have
10 Norma...	Last week, the idea of such a confrontation became more real as	Indian	and Chinese soldiers clashed in the worst violence on the countries'
11 Norma...	d in the worst violence on the countries' border in 45 years, leaving 20	Indian	troops dead and causing an unknown number of Chinese casualties. Prime
12 Norma...	China facing new scrutiny and criticism over the coronavirus pandemic,	Indian	officials have recently seemed emboldened, taking steps that made Western dip
13 Norma...	system will play out between India and China," he said. Chinese and	Indian	generals continue to meet along the border to discuss de-escalation
14 Norma...	continue to meet along the border to discuss de-escalation efforts. And	Indian	officials acknowledged on Friday that the night before, China released 10 Indian
15 Norma...	officials acknowledged on Friday that the night before, China released 10	Indian	soldiers seized during the fighting. (Later, China's foreign ministry spokesman

FIGURE 2. Concordance lines of keyword Indian

Tuesday's talks coincide with rising **U.S.-China** tension over the coronavirus, trade, technology, Hong Kong, Taiwan, and human rights. They also follow a recent bloody border clash between **China** and **India** and rising tensions in both **Australia** and Japan over China's recent assertiveness in the region.
 (The Washington Times, October 7, 2020)

It is evident that the discourse surrounding China's international relations extends beyond the Quad and encompasses China's Belt and Road Initiative (BRI). The BRI has garnered substantial media attention, often characterised in a negative and derogatory manner. Notably, the U.S. government has labelled the BRI as "debt-trap diplomacy," asserting that China exploits the global economic crisis stemming from the COVID-19 pandemic to advance its influence. Furthermore, reports of America imposing sanctions on China and China responding with retaliatory measures indicate a prolonged deterioration in U.S.-China relations.

Using its "**One Belt, One Road**" program as a cover for debt-trap diplomacy, China has set its sights on undermining the independence of nations in South Asia and across the developing world.
 (The Washington Times, May 22, 2020)

China is lashing out at American lawmakers who are trying to hold it accountable in U.S. courts for spreading the coronavirus. According to a Global Times report, Beijing is ready to "hit back" with its own **sanctions**.
 (The Washington Times, May 18, 2020)

The analysis of keywords presented above provides evidence of distinct and noteworthy characteristics observed within the three corpora, shedding light on the evolving focus of American media's coverage of China's response to COVID-19 across different stages. Notably, the examination of 3-gram lists in the blocking stage corpus and the normalised stage corpus highlighted discursive changes, whereas the analysis of keywords from these corpora provided a

clear indication of shifting themes. These thematic shifts encompassed a transition from emphasising virus containment and U.S.-China relations to encompassing vaccination efforts, investigations into the virus's origin, influential figures, and international relations. These findings underscore the efficacy of a combined approach of n-gram and keyword in corpus-based diachronic discourse analysis, as it effectively captures both the continuity and evolving nature of discourse over time. This method enables us to discern the dynamic progression of discourse surrounding China's COVID-19 response, offering a comprehensive understanding of the subject matter.

CONCLUSION

The findings of this study highlight the shifting narratives in American media's portrayal of China's handling of the pandemic as time progressed. These shifts encompassed an initial, relatively balanced depiction of China's pandemic response and criticism of China's handling of COVID-19. This evolved into a discourse that praised China's response while highlighting the deteriorating relations between China and America. Finally, the focus shifted to the debate surrounding the virus's origin and politicisation of the pandemic.

While occasional balanced and positive portrayals are identified, there remains a prevailing inclination towards negative representations characterised by three prominent themes: the stigmatisation of China, the undermining of China's achievements in combating the pandemic, and the politicisation of the pandemic. The evolving nature of these representations over time can be attributed to American political and ideological motivations, with the central tenet being the "America First" doctrine, which prioritises American interests, sometimes at the expense of international cooperation. In the context of constructing a stereotypical framework for China's response to COVID-19, this doctrine can be seen as either encouraging or amplifying media narratives that cast China in an unfavourable light. The adoption of this doctrine by certain media outlets fostered an environment in which it became easier to lay blame on China, often in the absence of substantial evidence. This, in turn, contributed to the development of a stereotype depicting China as the primary instigator or an unreliable partner in global health crises.

The evolving depiction of China's COVID-19 response in American media also underscores perceived challenges in cooperation among America, China, and the WHO in addressing the pandemic, which has led to disagreements and conflicts. However, it is essential to recognise that conflicts and non-cooperation can undermine collective efforts to address this common threat, potentially resulting in widespread economic and societal devastation (Christensen, 2020). In addition, the findings from this study bear significant implications for understanding media discourse in international relations, particularly during global crises. The evolving portrayal of China's pandemic response in American media highlights the media's role in shaping, if not reinforcing, international tensions. The emphasis on confrontation can only perpetuate mistrust and reduce the efficacy of joint efforts in crisis mitigation. Hence, it's important for media, policymakers, and stakeholders to reflect thoughtfully on their narratives, being cautious not to succumb to the confines of stereotypical beliefs and acknowledging the wider repercussions that such discourse can have on international relations and global collaboration.

It is crucial to acknowledge the study's limitations. The diachronic corpus does not extend to the latest development of COVID-19 in China, and the analysis relies mainly on CL techniques. To address these limitations, future research could capture the entire trajectory of COVID-19 from its inception to the current situation for a more comprehensive understanding of shifting media

narratives. Additionally, integrating CL techniques with critical discourse analysis enables a deeper exploration of underlying patterns of representation and narrative framing in the discourse.

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