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Media portrayals and social stigma surrounding COVID-19 survivors: a content analysis of Chinese media coverage

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Abstract

Background The COVID-19 pandemic has generated widespread uncertainty, leading to an overabundance of information and fuelling public fear and confusion. Concerns regarding the transmissibility and long-term effects of the virus on survivors have exacerbated societal stigma towards those who have recovered from COVID-19. This study analyses Chinese media coverage to explore the ways in which COVID-19 survivors are portrayed and how these portrayals may contribute to the broader narrative of stigmatisation.

Methods This study employs content analysis of 440 news articles from four major Chinese media outlets, spanning the period from January 2020 to March 2023. The sample includes two state-sponsored outlets, *People's Daily* and *Global Times*, and two market-oriented outlets, *Caixin Weekly* and *Sanlian Lifeweek*. By comparing media coverage across these outlets, the research investigates how representations of COVID-19 survivors varied across different media outlets.

Results Disparities in media portrayals of COVID-19 survivors were found. State-sponsored media, such as *People's Daily* and *Global Times*, generally depicted COVID-19 as less severe, downplaying fear and emphasising positive developments. In contrast, both *Caixin Weekly* and *Sanlian Lifeweek* frequently reported on cases of recovered individuals testing positive again, with *Caixin Weekly* offering more in-depth discussions on the potential for survivors to remain contagious. While the negative impacts of COVID-19 on survivors' labour and social capacities were not a major focus in most outlets, these impacts were still present, particularly in *People's Daily* and *Sanlian Lifeweek*, which reported more significant negative effects on survivors' social functions. Across both state-sponsored and market-oriented outlets, mixed messages emerged regarding the social acceptance of survivors, with articles simultaneously advocating for social distancing while promoting reintegration. These findings underscore the complexity of media portrayals, revealing a diverse reporting landscape characterised by mixed messages.

Conclusion This study reveals the presence of conflicting media narratives, which have potentially contributed to the societal stigma surrounding COVID-19 survivors. The mixed messages—simultaneously promoting both fear and acceptance—have exacerbated public confusion and misconceptions. The findings underscore the critical need for clear, consistent, and evidence-based reporting during public health crises to mitigate stigma and enhance the public's understanding of health-related information.

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Keywords Stigma, Stigmatisation, Health crisis communication, Media analysis, Chinese journalism

Introduction

The global outbreak of COVID-19 occurred during a period of rapid advancements in media technology, facilitating the widespread dissemination of both accurate and inaccurate information [1, 2]. Social media and the Internet have frequently been identified as major sources of misinformation and disinformation, whereas mainstream media, particularly in authoritative societies, is traditionally perceived as more credible [3]. However, as scientific understanding of COVID-19 evolves, initial “facts” have been subject to revision. Controversies persist regarding the contagiousness of recovered individuals, the duration of post-recovery infectiousness, and the potential for long-term health impairments. The ambiguity in media coverage—whether intentional or not—has fuelled public confusion, panic, and the social stigmatisation of those who have recovered.

China has continually adapted its containment measures in response to different stages of the pandemic, with significant changes occurring by the end of 2022. Before December 2022, China's stringent COVID-19 measures subjected individuals exposed to the virus to various regulatory actions. Depending on the extent of exposure, these measures ranged from home isolation and movement restrictions to centralised quarantine in designated facilities for monitoring or treatment. While these policies aimed to control the spread of the virus, they also heightened public anxiety. As a result, individuals perceived as potentially contagious were met with social distancing, further fuelling a psychological sense of fear and distance. This fear, in turn, exacerbated the stigmatisation of recovered individuals.

This study seeks to deepen the understanding of the social stigma surrounding COVID-19 survivors by examining their portrayal in Chinese media. Given the media's significant role as an agenda-setter in shaping public discourse [4], it is critical to analyse how survivors are represented and to explore the media's role in perpetuating or mitigating social stigma. By examining three years of media coverage from both state-sponsored and market-oriented sources, this research aims to investigate the media narratives concerning COVID-19 survivors. Additionally, this study contributes to the broader discourse on how media can address and reduce social stigmatisation faced by health-disadvantaged groups, such as individuals living with HIV/AIDS, tuberculosis, or other chronic conditions.

Information uncertainty and media bias

The outbreak of COVID-19 has ushered society into an era marked by significant information uncertainty. A vast

influx of information—often intermingled with misinformation and disinformation—has overwhelmed the public, contributing to heightened anxiety and unease. This uncertainty has been closely linked to acute stress disorder among the Chinese population during the pandemic [5]. Empirical studies suggest that individuals with heightened concerns about misinformation are more likely to engage with and propagate alarmist narratives [2].

Misinformation and disinformation, though both misleading, differ fundamentally in intent. Misinformation is transmitted unknowingly, as the disseminators are unaware of the information's inaccuracy. Disinformation, on the other hand, is deliberately fabricated to mislead recipients [6]. The key distinction lies in the intent to deceive, rather than the truthfulness of the information itself [7]. In the increasingly specialised and fragmented society, individuals often struggle to navigate the abundance of information available, making it difficult to form accurate judgments and informed decisions [8]. The media, as a key provider of information, plays a crucial role in assisting individuals and groups in their decision-making processes [9], wielding substantial influence over beliefs, opinions, and collective emotions [10].

Research has shown that scientific coverage of COVID-19 by mainstream outlets such as the British Broadcasting Corporation (BBC) was often insufficient, resulting in misinformation and gaps in public understanding of the disease [11]. At the onset of the pandemic, the media frequently relied on government sources for information, despite the public's belief that health experts could provide more impartial perspectives. Health and scientific experts, however, received limited media coverage [12]. In addition, misinformation about COVID-19 prevention and treatment was frequently circulated on social media platforms such as Weibo [13]. The spread of such misinformation can undermine public health communication efforts and encourage harmful behaviours, posing health risks to those who adopt them [14]. Furthermore, media coverage is often shaped by biases, which can arise from factors such as journalists' worldviews, the interests of political parties or groups, personal preferences, or the quality of news sources [15–17].

When flawed information is disseminated through mainstream media—often perceived as more credible and influential—it poses considerable risks to society [18]. The portrayal of COVID-19 and its survivors in such media can significantly influence public perceptions, which in turn affects societal treatment of survivors and has implications for their psychological well-being.

Social stigma and COVID-19 survivors

The term “stigma” originates from ancient Greece, where it referred to a physical mark branded onto individuals with moral blemishes or low social status—such as slaves, criminals, or traitors—to signify their unwelcome presence, moral degradation, or behavioural defects [19]. Over time, as the concept of stigma has expanded beyond its original context and now encompasses a broader notion related to shame. Goffman provided an influential interpretation of stigma, arguing that individuals are stigmatised and devalued due to possessing undesirable attributes, which he termed “stigma”. Goffman identified three main types of stigma, with physical deformities being a primary category [20].

Scholars have since explored stigma in various contexts, focusing primarily on mental illness, HIV/AIDS, obesity, and homosexuality, each of which has been negatively associated with specific stages of human society or within certain social contexts. For instance, studies have shown that excessive emphasis on negative attitudes towards individuals with mental illness can contribute to their social isolation, suffering, and difficulties in securing employment [21]. Similarly, the stigmatisation of individuals with obesity presents significant risks to their physical and mental well-being [22]. Meyer measured the social stress experienced by sexual minorities by comparing their likelihood of developing mental illness to that of heterosexual individuals [23]. Beyond these domains, stigma has also been observed among other specific groups, such as rural migrant workers during China’s urbanisation process [24, 25], as well as in relation to online gaming [26].

During the SARS outbreak, researchers found that large-scale infectious diseases had a profound psychological impact on individuals [27]. This phenomenon is likely to be even more pronounced during the COVID-19 pandemic, given its prolonged duration and global reach. Irresponsible media coverage and sensationalist reporting have been suggested as major contributors to the formation of stigma against COVID-19 patients [28]. COVID-19 patients have often been labelled as “super-spreaders” or associated with community transmission of the virus [29], leading to social discrimination, unemployment, and both short- and long-term psychological issues [30]. Research also suggests that fear of the COVID-19 pandemic in Singapore contributed to the spread of anti-Chinese xenophobic discourse on social media platforms [31].

The close relationship between media and stigma has been widely explored by scholars. Scholar highlighted media distortions as a primary source of stigma against COVID-19 patients in Indonesia [32]. In the United States, studies observed a rise in anti-Asian sentiment on social media, with the virus’s spread being attributed

to Asian individuals [33]. In South Korea, scholars found that negative media coverage exacerbated the mental and psychological burden on COVID-19 patients [34]. Several factors have influenced public aversion to COVID-19 patients in China, including the large volume of information shared on social media, strict precautionary measures, and the dissemination of high levels of risk information, all of which may have intensified this aversion [35].

For COVID-19 survivors, limited or partial understanding of the disease has contributed to fear, discrimination, and social stigmatisation [36]. This stigma has manifested in various forms of inequitable treatment, such as reduced employment opportunities, housing discrimination, and exclusion from public activities. These issues have been widely covered by the media globally, further amplifying the social repercussions and entrenching the marginalisation of COVID-19 survivors. Given the interdisciplinary nature of social stigma, a diverse range of methods has been employed to investigate this complex phenomenon. These approaches include traditional social surveys [31, 38, 39], diary studies [11], and computational techniques such as topic modelling and sentiment analysis [40]. Such methods have been utilised in contexts ranging from the exploration of xenophobic attitudes towards specific immigrant groups [31] to the examination of social stigma among survivors in countries like Uganda [36]. Furthermore, given the media’s pivotal role in shaping public discourse, traditional news outlets remain influential as agenda setters [4]. Therefore, it is crucial to complement studies centred on social media content analysis [41, 42] with examinations of content from mainstream media, which continue to exert substantial influence, although relevant studies remain limited [43].

Despite an increase in stigma-related research following the outbreak of COVID-19, our understanding of stigma against COVID-19 survivors from a media perspective remains insufficient. As scholar points out, COVID-19 survivors and healthcare workers have experienced stigmatisation and discrimination globally, with the extent and nature of this stigma varying across countries and social groups [37]. Examining the media representation of COVID-19 and its survivors in China, a country with pandemic prevention policies significantly different from those in most Western nations, is therefore of great importance. This study seeks to enhance our understanding of the formation of social stigma against survivors by analysing the distinctions and similarities in the portrayal of COVID-19 and its survivors across Chinese state-sponsored and market-oriented media.

Methodology

Content analysis and sampling strategy

Content analysis, a well-established methodology in the social sciences, is well-suited for examining media outputs [44], enabling researchers to systematically derive a comprehensive understanding of media contents [45]. This study employs content analysis to investigate the media coverage of a specific group—COVID-19 survivors—in Chinese news outlets, with the aim of exploring how such news is narrated. Additionally, it seeks to examine the media’s role in the (de)stigmatisation of these individuals.

While media institutions in China generally operate in close collaboration with the authority and elites [17], notable distinctions have been identified between two types of Chinese media [46, 47]. State-sponsored media are typically more aligned with official narratives, whereas market-oriented media tend to present relatively more diverse viewpoints and conflict frames. Despite this, the journalistic role advocated in China is largely collaborative, with journalists often considering themselves partners of the government who support efforts to promote development and social well-being [17].

Recognising the distinctions between Chinese market-oriented and state-sponsored media, we selected *People’s Daily*, *Global Times*, *Caixin Weekly*, and *Sanlian Lifeweek* as our research sample. *People’s Daily* and *Global Times* are representative of state-sponsored media. *People’s Daily* is a long-established daily newspaper in China with a large readership, widely regarded as the party’s newspaper and loyal to the state narrative [48]. By contrast, *Global Times* is a nationalist tabloid with a primary focus on international affairs, known for its nationalistic tone and alignment with state interests. The inclusion of both outlets allows for a comprehensive capture of state narratives and official perspectives on COVID-19. In addition, *Caixin Weekly* and *Sanlian Lifeweek* were selected to represent market-oriented media. While both are published on a weekly basis, they emphasise more individual-centric reporting and offer in-depth analyses of the pandemic [49]. This dual selection of state-sponsored and market-oriented media provides a balanced lens through which to examine differing representations of COVID-19 and its survivors.

The research timeframe spans from January 2020 to March 2023, allowing for the examination of different

phases of COVID-19 containment measures, from the stringent Zero-COVID period to the most recent policy adjustments in December 2022. Data collection was conducted using a media database provided by *Wisers* and was cross-checked against data available on *CNKI* or the official databases of media outlets, where accessible. We applied two criteria for data collection. First, the article had to reference either *COVID-19* or *novel coronavirus*. Second, they had to contain at least one of the following specified terms related to recoverees: *recovery*, *cure*, *discharge from hospital* or *turning negative*. The initial search yielded over a thousand articles. However, upon review, we observed that the term *recovery* frequently appeared in reports that merely provided pandemic updates. Consequently, articles that focused solely on reporting recovery figures were excluded from the dataset. After this filtering, 623 articles remained. A subsequent detailed review of these reports was conducted. Articles that mentioned recoverees but focused solely on their clinical treatment process were also excluded. Following this additional refinement, a final dataset of 440 relevant media reports was obtained. The temporal distribution of these samples is presented in Table 1.

Coding scheme and intercoder reliability

Following the completion of sample screening, we conducted a content analysis to examine how news reports represent COVID-19 and its survivors and to identify the similarities and differences across various media outlets. Our research design draws on previous studies that employed content analysis to investigate social stigma [50, 51], as well as key themes relevant to COVID-19 stigmatisation [52, 53]. We developed a coding schedule to capture various dimensions potentially related to stigma in media coverage. The coding schedule encompasses five dimensions, designed to capture key elements of the news coverage and contextual descriptions related to both the disease and its survivors: social contexts and descriptions of the disease, evaluation of infectiousness, evaluation of physical function, evaluation of social acceptance, and sentiment towards recovered patients. For each dimension, closely related questions were developed to guide the coding process, as illustrated in Table 2.

To validate the coding schedule, a pilot test was conducted using a randomly selected 10% of the total sample. Two well-trained coders independently applied the initial

Table 1 Sample distribution (January 2020 to March 2023)

Year	People’s Daily	Global Times	Sanlian Lifeweek	Caixin Weekly
2020	77(63.1%)	138(59.0%)	15(60.0%)	28(47.5%)
2021	7(5.7%)	46(19.7%)	3(12.0%)	8(13.5%)
2022	27(22.1%)	43(18.4%)	3(12.0%)	19(32.2%)
2023	11(9.0%)	7(3.0%)	4(16.0%)	4(6.8%)
Total	122(100%)	234(100%)	25(100%)	59(100%)

Table 2 The five dimensions of the coding schedule

Indicator	Example
Dimension 1: Social contexts and description of the disease	
(1) Does the reporting describe COVID-19 as a severe disease with serious consequences or long-term effects?	• At 15:33, the first patient was admitted. "The blood oxygen saturation while breathing air is only about 70%, and the patient cannot get out of bed and is in a serious condition, and urgent treatment is required immediately" [64].
(2) Does the reporting indicate or suggest positive developments in the COVID-19 pandemic? (e.g., decreasing virulence, progress in vaccine development, rehabilitation training, increasing numbers of discharged patients)	• Jinyintan Hospital has discharged nearly 1,200 people, and the cure rate has been steadily increasing [55].
(3) Does the reporting involve negative moral associations or evaluations of COVID-19 patients? (e.g., activities leading to the isolation of family members, neighbours, or communities)	• Whether the infected can maintain rigorous home quarantine depends entirely on their own self-discipline. Even if they continue to work or visit the vegetable market or supermarket, the authorities cannot hold them accountable [65].
(4) Does the reporting directly describe or imply fear of the COVID-19 virus and its carriers?	• On January 23rd, he was diagnosed with COVID-19 and was transferred to the Seventh Hospital in Wuhan on the same day. The next day, on the morning of Chinese New Year's Eve, he passed away [66].
Dimension 2: Evaluation of infectiousness	
(5) Does the reporting indicate or suggest the possibility of COVID-19 survivors (currently or in the future) experiencing a relapse?	• Tracking recovered COVID-19 patients revealed that a small number tested positive for nucleic acid upon recheck, raising concerns [67].
(6) Does the reporting indicate or suggest the potential for COVID-19 survivors (currently or in the future) to be contagious?	• We can't say that antibodies are useless for preventing novel coronavirus just because some patients still carry the virus after recovery [68].
(7) Does the reporting mention cases of individuals being isolated due to contact with COVID-19 survivors (currently or in the future)?	• In the observed cases, one patient was found to have live virus, and one patient infected his close contacts [69].
Dimension 3: Evaluation of physical function	
(8) Does the reporting indicate or suggest negative impacts of COVID-19 infection on the labour-related capacity of survivors (currently or in the future)? (e.g., direct effects on work performance, weakness, lack of concentration, forgetfulness)	• The reason why military medical workers decided to reject enlistment of COVID-19 patients may be considering that the damage of the novel coronavirus to the respiratory system is permanent [70].
(9) Does the reporting indicate or suggest negative impacts of COVID-19 infection on the social-related functions of survivors (currently or in the future)? (e.g., return to normal life)	• Some companies, on the grounds of "avoiding infecting others", even ask their family members to "take voluntary leave". All kinds of discriminatory phenomena make it difficult for patients and medical staff to return to normal life [71].
Dimension 4: Evaluation of social acceptance	
(10) Does the reporting indicate or suggest the need to maintain social distance from COVID-19 survivors (currently or in the future)?	• For the elderly who need to return to the institution after recovery, they should be quarantined for 14 days and re-enter the elderly care institution after passing a nucleic acid test and being cleared [72].
(11) Does the reporting advocate for the social acceptance of COVID-19 survivors (indicate or imply)?	• Guo Yanhong believes that the psychological rehabilitation and counselling of patients after discharge are equally important [73].
Dimension 5: Sentiment towards recovered patients	
(12) What overall sentiment towards COVID-19 survivors does the reporting convey?	• Make an overall judgment based on the article's portrayal of COVID-19 and recovered patients.

Table 3 Social contexts and descriptions of the Disease Across different media outlets

Indicator	Code	People's Daily	Global Times	Sanlian Lifeweek	Caixin Weekly
(1) Severity of Disease	Yes	58(47.5%)	88(37.6%)	22(88.0%)	38(64.4%)
	No	64(52.5%)	146(62.4%)	3(12.0%)	21(35.6%)
(2) Positive Developments	Yes	85(69.7%)	82(35.0%)	3(12.0%)	20(33.9%)
	No	37(30.3%)	152(65.0%)	22(88.0%)	39(66.1%)
(3) Moral Evaluations	Yes	0(0.0%)	1(0.4%)	1(4.0%)	2(3.4%)
	No	122(100.0%)	233(99.6%)	24(96.0%)	57(96.6%)
(4) Fear of COVID-19	Yes	12(9.8%)	7(3.0%)	12(48.0%)	10(16.9%)
	No	110(90.2%)	227(97%)	13(52.0%)	49(83.1%)

Table 4 Evaluation of Infectiousness Across different media outlets

Indicator	Code	People's Daily	Global Times	Sanlian Lifeweek	Caixin Weekly
(5) Potential for Relapse	Yes	7(5.7%)	23(9.8%)	6(24.0%)	10(16.9%)
	No	115(94.3%)	211(90.2%)	19(76.0%)	49(83.1%)
(6) Contagion after Recovery	Yes	15(12.3%)	25(10.7%)	3(12.0%)	13(22.0%)
	No	107(87.7%)	209(89.3%)	22(88.0%)	46(78.0%)
(7) Isolation Due to Contact with Recovered Patients	Yes	0(0.0%)	1(0.4%)	1(4.0%)	1(1.7%)
	No	122(100.0%)	233(99.6%)	24(96.0%)	58(98.3%)

coding framework to this subset. During this phase, both coders systematically evaluated whether the coding categories and definitions were sufficiently precise, mutually exclusive, and comprehensive. No major ambiguities or inconsistencies were identified. Besides, to ensure coding reliability, intercoder reliability was assessed through an additional round of independent coding of a separate, randomly selected 10% of the dataset. This standard procedure facilitated a systematic evaluation of coding consistency. Coders were provided with coding instructions, including precise definitions for each variable and illustrative examples to differentiate between categories. The lowest percentage agreement between the two coders was 92.72% (observed in the sentiment variable), while agreement for all other variables exceeded 93%. Additionally, Cohen's kappa coefficient was calculated at 0.93, indicating a strong level of intercoder reliability. Following the successful intercoder reliability assessment, the final coding of the entire dataset was conducted by a single coder to maintain consistency across all cases.

Results

Social contexts and description of the disease

Our findings indicate significant differences between state-sponsored and market-oriented media in their portrayal of social contexts and descriptions of COVID-19, as shown in Table 3. Specifically, over half of the articles published in both state-sponsored newspapers did not emphasise COVID-19 as a severe disease with serious consequences or long-term effects. In contrast, 88.0% of reports in *Sanlian Lifeweek* and 64.4% of reports in *Caixin Weekly* highlighted the severity of COVID-19, often through interviews with patients. At the same time, 69.7% of reports in the *People's Daily* either indicated or

suggested positive developments in the pandemic. The newspaper prioritised data provided by the National Health Commission, emphasising smooth progress and positive developments in the pandemic response, particularly narratives highlighting the significant increase in discharged patients, the effectiveness of traditional Chinese medicine, and vaccine progress. However, *Sanlian Lifeweek* mentioned similar positive developments in only 12.0% of its reports.

Few articles involved negative moral associations or evaluations of COVID-19 patients. Out of a total of 440 reports, only four exhibited such negative moral evaluations. Furthermore, *Sanlian Lifeweek* depicted a sense of fear surrounding the COVID-19 virus and its carriers in 48.0% of its reports, a significantly higher percentage than the other three outlets, which ranged from 3.0 to 16.9%. It is evident that state-sponsored media tends to downplay the severity of COVID-19, focusing instead on positive developments or data related to the fight against the pandemic. This aligns with previous research that framed the fight against COVID-19 as a metaphorical war in China [54].

Evaluation of infectiousness

Whether COVID-19 survivors are considered infectious remains a key concern for the public and a crucial factor influencing their social reintegration. Our results highlight significant differences across media outlets regarding this issue, as shown in Table 4. These differences are particularly evident in discussions of COVID-19 survivors testing positive again within a short period, which could potentially render them infectious. Only 5.7% of articles in *People's Daily* and 9.8% in *Global Times* mentioned the possibility of relapse among survivors. In

contrast, *Sanlian Lifeweek* and *Caixin Weekly* reported such scenarios more frequently, at 24.0% and 16.9%, respectively.

Media discussions about the potential for recovered individuals to remain infectious also shape public attitudes towards their acceptance. We found that all four media outlets included reports suggesting the potential for COVID-19 survivors to be contagious. The highest percentage was found in *Caixin Weekly* at 22.0%, while the other three outlets were relatively similar, ranging from 10.7 to 12.3%. Additionally, during certain phases of COVID-19 control, both China and other countries implemented isolation measures for individuals who might have been in contact with the virus. These preventive policies have, to some extent, exacerbated public concerns regarding virus transmission.

Interestingly, although the two market-oriented outlets frequently discussed the possibility of relapse among COVID-19 survivors, and *Caixin Weekly* contained a relatively high proportion of articles suggesting the contagiousness of recovered individuals, all four outlets rarely provided specific cases of individuals being isolated due to contact with COVID-19 survivors to substantiate these claims. This discrepancy highlights inconsistencies in media narratives on the issue, which may contribute to deepening public reservations about accepting recovered individuals.

Evaluation of physical function

Social reintegration and labour reintegration are two critical aspects for survivors re-entering society after recovery. When news reports suggest that COVID-19 survivors may still be infectious or experience difficulties in concentration, this could negatively affect their social reintegration. Similarly, reports indicating irreversible impacts on cardiovascular or respiratory functions might lead the public to overestimate the physical damage caused by the virus, potentially limiting survivors' employment opportunities and hindering their social reintegration.

As shown in Table 5, a variety of results emerged when evaluating how the media reported these two aspects. Regarding the labour-related capacity of survivors, all four media outlets contained a relatively small and similar proportion of reports suggesting negative impacts of COVID-19 on survivors' ability to work, ranging from 14.5% in the *Global Times* to 17.2% in the *People's Daily*.

However, in relation to social functions, *People's Daily* and *Sanlian Lifeweek* displayed some similarities, with 27.0% of articles in the former and 24.0% in the latter suggesting negative impacts of COVID-19 on survivors' social reintegration. In contrast, *Global Times* and *Caixin Weekly* had notably lower percentages of such negative descriptions, at 13.7% and 16.9%, respectively.

It is noteworthy that the state-sponsored *People's Daily* and the market-oriented *Sanlian Lifeweek* stood out in this regard. The higher frequency of such descriptions in *Sanlian Lifeweek* can be attributed to its emphasis on investigative reporting, as observed in our data. Through interviews with survivors, it highlights their personal experiences of the disease and their journeys through social and labour reintegration. Interestingly, *People's Daily* exhibited the highest level of emphasis on both the labour-related and social-related capacities of survivors, possibly due to its attempt to balance different narrative perspectives in its reporting, specifically the healthcare narrative and the survivor's narrative.

For the healthcare narrative, the dedication of healthcare workers to save lives and improve patients' health serves as compelling material in *People's Daily*. For example, a report from 28 February 2020 describes a doctor stating, "Every day there is some good news. Some patients can speak, and some can open their eyes. Several patients have been transferred to regular wards and discharged in the past few days. There is no greater joy than this" [55]. In contrast, from the survivors' perspective, their experiences of social reintegration often reflect the social stigma they faced. For instance, a report from 13 February 2020 recounts Ms Zhang, a COVID-19 survivor, describing her post-recovery life: "After discharge, I still had to isolate at home for two weeks. I used separate daily necessities from my family and ate meals by myself" [56].

In attempting to balance these diverse narratives, *People's Daily* has, to some extent, transmitted mixed messages that may not always contribute positively to shaping the audience's perception of COVID-19 and its survivors.

Evaluation of social acceptance

In addition to providing information on the disease and recovered patients, our findings indicate that media outlets, to some extent, directly or indirectly convey recommendations to the public regarding whether to maintain

Table 5 Evaluation of recovered patients' physical function across different media outlets

Indicator	Code	People's Daily	Global Times	Sanlian Lifeweek	Caixin Weekly
(8) Negative Impact on Work Capacity	Yes	21(17.2%)	34(14.5%)	4(16.0%)	10(16.9%)
	No	101(82.8%)	200(85.5%)	21(84.0%)	49(83.1%)
(9) Negative Impact on Social Functions	Yes	33(27.0%)	32(13.7%)	6(24.0%)	10(16.9%)
	No	89(73.0%)	202(86.3%)	19(76.0%)	49(83.1%)

Table 6 Evaluation of recovered patients' Social Acceptance Across different media outlets

Indicator	Code	People's Daily	Global Times	Sanlian Lifeweek	Caixin Weekly
(10) Social Distancing	Yes	14(11.5%)	23(9.8%)	4(16.0%)	13(22.0%)
	No	108(88.5%)	211(90.2%)	21(84.0%)	46(78.0%)
(11) Call For Acceptance	Yes	8(6.6%)	42(17.9%)	3(12.0%)	17(28.8%)
	No	114(93.4%)	192(82.1%)	22(88.0%)	42(71.2%)

Table 7 Sentiment towards recovered patients across different media outlets

Indicator	Code	People's Daily	Global Times	Sanlian Lifeweek	Caixin Weekly
(12) Sentiment	Positive	22(18.0%)	54(23.1%)	3(12.0%)	23(39.0%)
	Neutral	95(77.9%)	141(60.3%)	15(60.0%)	31(52.5%)
	Negative	5(4.1%)	39(16.7%)	7(28.0%)	5(8.5%)

social distance from COVID-19 survivors or to promote their social acceptance.

As shown in Table 6, 11.5% of articles in *People's Daily* and 9.8% of articles in *Global Times* suggest that after COVID-19 patients are medically deemed recovered and discharged from hospital, their cohabiting family members or the general public should maintain a certain distance from them. In some reports, this has been framed as a recommendation for COVID-19 survivors to actively keep their distance from others. Such messages are more prevalent in market-oriented media, appearing in 16.0% of reports in *Sanlian Lifeweek* and 22.0% in *Caixin Weekly*. Besides, the advocacy for social acceptance of survivors is less prominent. Only 6.6% of articles in *People's Daily* and 17.9% in *Global Times* mention and advocate for the social acceptance of survivors, while *Sanlian Lifeweek* and *Caixin Weekly* address this issue in 12.0% and 28.8% of their coverage, respectively.

Given the media's pivotal role in shaping public perceptions, it is essential that outlets provide clear, consistent, and evidence-based guidance to foster a supportive environment for the reintegration of survivors into society. However, while most articles across all media outlets neither advocate for maintaining social distance from survivors nor actively promote their reintegration, the mixed messages—both supporting and discouraging social distancing—found across and within media types may contribute to public confusion and exacerbate the stigmatisation of survivors.

Sentiment towards recovered patients

In terms of sentiment, *People's Daily* demonstrates the highest proportion of neutral tone among the four media outlets, with 77.9% of its reports maintaining a neutral stance, as shown in Table 7. In instances where sentiment towards survivors is more pronounced, positive sentiment dominates, accounting for 18.0%, which is more than four times the proportion of negative sentiment (4.1%). Upon closer examination, we observe that the tendency towards positive sentiment becomes more evident in the 2023 sample. With the adjustment

of China's COVID-19 prevention policies, home isolation has become a substitute for centralised quarantine. *People's Daily* has published numerous reports guiding the public on home isolation, and by emphasising positive sentiment in these articles, it seeks to alleviate public anxiety.

Both *Global Times* and *Sanlian Lifeweek* display similar proportions of neutral sentiment, at 60.3% and 60.0%, respectively. However, it is noteworthy that while *Global Times* shows a higher proportion of positive sentiment (23.1%) compared to negative sentiment (16.7%), *Sanlian Lifeweek* is the only media outlet where negative sentiment (28.0%) exceeds positive sentiment (12.0%). It is important to note that the negative sentiment in *Sanlian Lifeweek's* reports does not directly oppose the reintegration of survivors into society, but rather emerges through metaphorical language. For example, in an article titled "Production 'Defence War': Zhengzhou Foxconn's 2022 Recruitment Season", published in the 50th issue of *Sanlian Lifeweek* in 2022, it stated: "This is the transformed Tiancheng Apartments, which were later provided for the residence of employees who turned from positive to negative" [57]. Such phrasing, which implies a distinction between recovered and uninfected individuals, may be perceived as reinforcing social segregation.

In contrast, *Caixin Weekly* conveys a distinctly more positive sentiment in its reports, with 39.0% of its articles expressing positive sentiment towards survivors, while only 8.5% reflect negative sentiment. This tendency could be attributed to *Caixin Weekly's* focus on topics related to international trade and economic recovery, such as the role of the European COVID Digital Certificate in reviving economic activities and the economic growth some countries have experienced following mass recovery from COVID-19, which encourages a more optimistic view of survivors.

Overall, *People's Daily* and *Caixin Weekly* display more polarised sentiments towards survivors, whereas *Global Times* and *Sanlian Lifeweek* convey more mixed sentiments. These mixed messages could contribute to public

confusion, misperceptions, and potentially increase the stigmatisation of survivors.

Discussion

Our findings reveal distinct differences between state-sponsored and market-oriented media in their portrayal of COVID-19 survivors, as well as notable variations within the same type of media. However, certain themes show consistency across the four outlets studied. Importantly, this study underscores the presence of mixed messages in the portrayal of COVID-19 and its survivors across both state-sponsored and market-oriented media outlets.

People's Daily, for instance, portrays COVID-19 as a disease of significant severity, suggesting potential long-term repercussions for survivors. Simultaneously, it emphasises positive developments in the pandemic's trajectory, highlighting national achievements in combating the disease, particularly through distinct pandemic prevention measures and the promotion of national unity. While the newspaper acknowledges the possibility of long-term impairments to survivors' labour capacity and social functions, it generally adopts a neutral stance towards them. In contrast, *Global Times* downplays the severity of COVID-19, expressing minimal concern about the virus and rarely advocating the need for maintaining distance from survivors. Nevertheless, its overall sentiment towards survivors is not distinctly polarised, with positive sentiments slightly outweighing negative ones.

Sanlian Lifeweek stands out among the four media outlets for its coverage, which gives voice to both current COVID-19 patients and those who have recovered, consistently presenting their perspectives during these critical times. However, it is also the outlet most dedicated to portraying COVID-19 as a severe disease. It mentions the phenomenon of recovered patients relapsing more frequently than any other outlet, while less often indicating that the pandemic situation is improving. In *Caixin Weekly's* coverage, the portrayal of the disease's severity, alongside its emphasis on relapse and the risk of contagion after recovery, is more pronounced than in the two state-sponsored outlets. Moreover, *Caixin Weekly* features the highest proportion of discussions on two seemingly contradictory practices: maintaining social distance from survivors while simultaneously advocating for their social acceptance.

In responding to major public health crises, it is crucial for media outlets to provide the public with clear, consistent, and evidence-based information, enabling an accurate understanding of the event, its progression, and its implications. Previous studies have highlighted the role of social media in facilitating the timely communication of information between public health organisations and individuals, as well as keeping the public informed during

emergency situations [58]. However, other research suggests that social media also contributes to the spread of misinformation regarding COVID-19 prevention and treatment [13, 59] and toxic discourses, such as xenophobia [31] and aversion towards COVID-19 patients [35]. In contrast, mainstream media continue to play an important role in shaping public discourse [4], with the information they provide often regarded as more credible and influential [3, 18].

Our findings, however, indicate the presence of contradictory information within mainstream media coverage. For example, while emphasising positive developments in the pandemic's trajectory, including giving voice to recoverees and advocating for social acceptance towards them, the media also highlights the severity of the disease, its long-term effects on bodily functions, and implies that the public should maintain social distance from survivors. These inconsistencies, even within the same media outlet, may potentially influence the public's understanding of COVID-19 and its survivors, inadvertently contributing to heightened fear of the virus and stigmatisation of those who have recovered.

While Chinese media professionals generally perceive themselves as collaborators with the authorities and elites [17], our findings align with previous research on the differing approaches of various media types in reporting public health issues, such as during the SARS outbreak [60]. We argue that within a collaborative journalistic culture like China's, different types of media outlets—both state-sponsored and market-oriented—continue to make relatively distinct editorial decisions and adopt varying reporting focuses. These differences contribute to the emergence of complex and multifaceted narratives in the coverage of public health crises.

For state-sponsored media outlets, the collaborative role they advocated led them to support official narratives, which allowed them to generally serve two main purposes in reporting on this public health crisis. First, they needed to pacify the public and highlight positive developments and national achievements in the “battle” against COVID-19—framed as a metaphorical war [54]—by communicating messages of confidence, hope, and optimism [61]. At the same time, they emphasised the gravity of the virus and the potentially severe consequences of infection to ensure public compliance with restrictive measures, from the state level down to grassroots communities. These dual aims contributed to narrative inconsistencies, which could result in somewhat conflicting messages and potentially lead to mixed public perceptions. In contrast, market-oriented media outlets face particular challenges. While they are expected to align with broader state narratives, especially on critical issues such as the COVID-19 pandemic, previous research highlights their simultaneous need to attract

audiences and present their reporting as investigative [47, 49]. This dual obligation places market-oriented media in a complex position, balancing state-aligned messaging with market-driven imperatives to engage the public.

Thus, this study highlights the complex dynamics between state-sponsored and market-oriented media in their portrayal of COVID-19 and its survivors, revealing both their alignment with state narratives and the market-driven need to engage audiences. The presence of mixed messages within media coverage raises significant concerns about the potential impact on public perceptions, particularly the risk of fostering fear and stigmatisation of COVID-19 survivors during certain periods. These findings underscore the critical role of media in shaping public discourse during health crises and highlight the need for more consistent, evidence-based reporting to prevent confusion and the spread of prejudiced information.

It is important to acknowledge, however, information initially regarded as authoritative or legitimate may shift as scientific knowledge deepens. Media practitioners must communicate these changes clearly and transparently to the public. Additionally, increasing public health literacy is an area where the media can play a vital role. To promote public health literacy—which includes the ability to seek health information, understand disease risks, and find solutions—media outlets should prioritise the clear communication of accurate, up-to-date health information. By doing so, they can empower the public to recognise symptoms, understand the causes of diseases, and more accurately assess the risks of both chronic and infectious illnesses [62, 63]. In this context, improving media practices in the coverage of public health issues is crucial for cultivating a well-informed public capable of making sound health decisions—critical for the effective management of both current and future public health challenges.

Conclusion

This study advances our understanding of how Chinese media portray COVID-19 and its survivors, illustrating media's potential role in shaping public perceptions and influencing social stigma. A content analysis of four outlets—two state-sponsored (*People's Daily*, *Global Times*) and two market-oriented (*Sanlian Lifeweek*, *Caixin Weekly*)—from January 2020 to March 2023 reveals significant disparities in their representations.

State-sponsored media generally depict COVID-19 as less severe, downplaying fear and emphasising positive developments. The market-oriented outlets, *Caixin Weekly* and *Sanlian Lifeweek*, frequently report on cases of recovered individuals who later test positive again, with *Caixin Weekly* particularly notable for suggesting that survivors may still be contagious. Although

media coverage seldom addresses the long-term impact of COVID-19 on survivors' labour and social capacities, negative evaluations persist, with *People's Daily* and *Sanlian Lifeweek* reporting more significant negative effects on survivors' social functions. Both state-sponsored and market-oriented media convey mixed messages on survivors' social acceptance, simultaneously advocating for reintegration and social distancing, contributing to a fragmented and ambiguous reporting landscape.

It is crucial to recognise that public health crises like COVID-19 unfold in rapidly changing contexts, where our understanding of the disease continues to evolve. Media practitioners must communicate updates with clarity and transparency to the public. To achieve this, media must prioritise the accurate and timely communication of health information, empowering the public to recognise symptoms, understand disease causes, and assess risks more effectively. By improving media practices in health coverage, media outlets can contribute to building a well-informed public capable of making sound health decisions—an essential factor in managing both current and future public health challenges.

Despite the strengths of this study, certain limitations should be acknowledged. Its focus on four media outlets may not fully capture the breadth of narratives on COVID-19 in China, and it does not examine audience reception. Future research should incorporate surveys or interviews to explore how different demographics interpret media portrayals, offering deeper insights into the media's role in shaping public attitudes and responses. Additionally, future studies could extend the longitudinal approach by analysing media coverage in smaller units, such as month by month, to better track shifts in reporting patterns and public discourse over time.

Acknowledgements

Not applicable.

Author contributions

WW designed the study, collected and managed the data, and wrote and revised the manuscript. WZ collected the data, provided analytical support, prepared figures, and assisted with the revision. All authors have read and approved the manuscript.

Funding

This study is funded by the Ministry of Education of China (MOE) General Project for Humanities and Social Sciences Research (22YJCZH178).

Data availability

The datasets used and/or analysed during the current study are available from the corresponding author upon reasonable request.

Declarations

Ethical approval and consent to participate

Not applicable. No human or animal subjects were involved in this study. The analysis conducted in this study solely utilised publicly available, published media materials.

Consent to publication

Not applicable.

Competing interests

The authors declare no competing interests.

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Received: 24 September 2023 / Accepted: 7 February 2025

Published online: 31 March 2025

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