Framing Responsibility for Depression in News Media: A Content Analysis of Depression Coverage on Sina Weibo

Xiaoxia Ma[1], Mastura binti Mahamed[1], Aryaty binti Alwie[1]

[1]Department of Communication, Faculty of Modern, Languages and Communication, University Putra Malaysia, Kuala Lumpur, Malaysia

Correspondence: Xiaoxia Ma, Department of Communication, Faculty of Modern, Languages and Communication, University Putra Malaysia, Kuala Lumpur, Malaysia.

Abstract

Depression stands as a pivotal health issue, notable both within the medical community and in society at large, and it is a leading contributor to disability. The prevalence of depression is on the rise, with a divergence of views on its cause attribution and solution responsibility for addressing it. It is crucial, therefore, to inform the public about these complexities. Given that news media are pivotal in disseminating health information and significantly shape public perceptions, attitudes, emotions, and the assignment of responsibility, this research employs a quantitative content analysis to assess the prevalence of framing responsibility for both the causes and potential solutions of depression at individual, social network, and societal levels. The results show that solution responsibilities for depression were reported more commonly than the causes. Meanwhile, attribution of responsibility for causes was tended to be at the individual, while solutions were on society. Social network played a major role in attributing both casual and problem-solving responsibilities as an independent level. Further, state-controlled media focused on societal responsible for addressing the issue and emphasized individual-level causal responsibilities more than market-oriented media organizations, which is likely to make societal-level responsibility attribution.

Keywords: depression, media framing, attribution responsibility, content analysis

1. Introduction

In China, depression has become one of the most prevalent and serious threats to public health, affecting approximately 95 million people, accounting for 6.7% of the country's population. Moreover, the number of depressions among Chinese people has significantly in the past three years. Recent research indicates that the COVID-19 pandemic has significantly heightened the prevalence and burden of depressive disorders (Wu & Wei, 2020; Varma P et al., 2021). In China, a mere 9.5% of those afflicted with depression have accessed some form of healthcare treatment, with an even smaller fraction—just 0.5%—receiving adequate care, primarily due to the reluctance to consult specialized facilities (Lu et al., 2021). Consequently, this situation poses a challenge that extends beyond the individuals affected and their immediate social network circles to society as a whole.

To tackle this challenge, the World Health Organization (2022) has developed an action plan that emphasizes the crucial role of mass media in raising public awareness about depression prevention and treatment while also combating existing stigmas. The news media act as a contemporary public forum where discussions on public health issues, such as the causes of depression and possible solutions, are presented and debated (Zhang et al., 2015). Through a framing process that involves defining issues, pinpointing their causes, and proposing solutions, the media can shape public perception by assigning responsibility for both the emergence and resolution of these problems (Entman, 1991, 1993; Kim, Scheufele & Shanahan, 2002).Although a variety of social, environment, and structural factors have been shown to predict health outcomes, depression is still widely viewed as a personal health issue for which affected individuals are mainly responsible for its causes and treatment. This can be problematic because it shapes public perception negatively (Heley et al., 2020) or may result in negative attitudes towards patients (Corrigan,2000; Weiner,2006). Meanwhile, previous scholarly investigation about responsibility frames in the media portrayals of depression have predominantly concentrated on both the individual and the societal level, and neglecting the perspective of the social network. To fill up this research gap, this study examined depression responsibility attributions in media articles at three different levels of responsibility.

To empirically address the existing research gap and explore the practical implications for health journalism and communication practices, our research analyzes depression-related articles posted on Sina Weibo from 2020 two 2023. Utilizing a quantitative content analysis, we examine how news media frame and assign responsibility for the causes and solutions of depression at various levels—individual, social network, and societal. This research contributes to the field by assessing the impact of social support on health outcomes. Additionally, we conducted a comparative framing analysis between state-controlled and market-oriented news media. This dual perspective provides a nuanced view of how different media ecosystems may shape public understanding and discourse on the issue of depression. By doing so, we aim to shed light on the role of media framing in health communication and its broader societal implications.

2. Literature Review

2.1 Health Responsibility in Depression

The debate over who should bear greater responsibility for addressing social issues, particularly mental health concerns, has long been contested, with differing views on whether it lies more with the individual or society (Kim & Willis, 2007). Recent research differentiates among individual, social network, and societal factors that shape the responsibility for depression, aligning with socioecological models and the broader concept of social determinants of health (Wiedicke et al., 2022; Bircher & Kuruvilla, 2014; Golden & Earp, 2012).

For decades, the predominant etiological model in the West emphasizes biochemical or genetic causes, which is also reflected by the media portrayal of depression, where there is a heavy emphasis placed on the individual level of responsibility (Major & Jankowski, 2020; S. Sun et al., 2021). According to a study by France, Lysaker, and Robinson (2007), recent clinical research has indicated the "absence of causal models in current psychiatry" and emphasized that the primary cause for depression brain may not sole. Uher (2008) highlighted that the effect of environmental factors is contingent upon genetic predisposition, and the influence of genetic variation on behavior is similarly shaped by environmental conditions. These approaches acknowledge the different contexts that involve factors at the individual, societal, and social network levels, with the latter serving as an intermediary layer of responsibility (Dahlgren & Whitehead, 1991; Stokols, 1996; Braveman & Gottlieb, 2014; Sallis & Owen, 2015).

The term "social network" describes the web of social relationships surrounding individuals (Heaney & Israel, 2008). Substantial evidence links social networks and social support to health outcomes through psychological (Uchino et al., 2012), physiological (Kiecolt-Glaser et al., 2010), and behavioral mechanisms (Gallant, 2013). Social networks can also promote health behaviors that prevent disease, slow its progression, or influence recovery speed (Miller & DiMatteo, 2013). Conversely, insufficient social support, as well as conflicts or stress within one's social network, can negatively impact health outcomes (Goodman et al., 2019; Hendryx et al., 2019). Previous studies have seldom explored responsibility at the social network level, and even less frequently have they linked it to media coverage.

Beyond individual and social network factors, depression can also be influenced by various external elements, including physical, socio-economic, policy, and cultural factors (Sallis & Owen, 2015), collectively referred to as societal-level influences. The concept that social conditions are key determinants of health issues (Link & Phelan, 1995) is widely accepted, with socio-economic status often considered a crucial factor in depression (Marmot & Allen, 2014). For example, an individual's health behaviors are typically linked to both their socio-economic status and the social support they receive from their network (Short & Mollborn, 2015). Public health experts advocate for identifying and implementing structural solutions to tackle community and population health challenges, such as enhancing healthcare services and addressing discriminatory practices against individuals with mental illness. Variations in assigning responsibility have significantly influenced health policies, practices, and public perceptions of various health issues (Kim & Willis, 2002).

2.2 Responsibility Framing of Depression in the Media

As the main source of information regarding depression and mental health issues, news media in particular on social media platform nowadays can play critical role for laypersons (Cotton & Gupta,2004). The discussion on depression is guided by how it is depicted in the news media (Kim & Willis,2007). The media can influence public opinion on depression by framing the issue in particular ways (Vreese, 2005). As described by Entman (2004), framing involves the selective emphasis of certain aspects of an issue by journalists to promote a specific interpretation, evaluation, or solution. One of them is the responsibility frame that involves selectively identifying, presenting, and promoting problem causes and solutions. Responsibility frame is a powerful concept that can both shape the public's perception of health problems (Heley et al., 2020), and the attributions of responsibility made by individuals (Starr & Oxlad, 2021; Temmann et al., 2020). Furthermore, responsibility frames have the potential to impact individuals' intentions towards engaging in health behaviors, interpersonal behavior, and societal participation (Y. Sun et al., 2016).

Iyengar (1991) concluded that presenting individual case studies or personal experience reports in the media, that is episodic framing, can result in a higher attribution of responsibility to individuals rather than to government and society.

By contrast, thematic framing can lead to societal responsibility attribution. Semetko and Valkenburg (2000) introduced the responsibility frame as a way of framing an issue by attributing responsibility for its cause or solution to the government, an individual, or a group. Responsibility has thus been defined at both the individual (micro) and societal (macro) levels. Recognizing the crucial role of social networks, our study expands on this concept by assigning responsibility for the causes and treatment of a specific mental health condition to either the individual, social network, or society.

2.3 Framing Responsibilities for Depression in China

For many years, academic research has explored how the media in China portrays mental health issues. Most of these studies have primarily employed qualitative or case study methodologies. For instance, a qualitative analysis of Weibo posts examining the personal and societal causes and treatments for depression in China found that public discussions more frequently attributed responsibility for depression's causes and solutions to individuals rather than society. Additionally, state-controlled media were more inclined to assign problem-solving responsibility to individuals, whereas market-oriented media tended to focus on broader societal factors. The tendency to individualize responsibility raises concerns about the potential for stigmatization (Zhang et al., 2021). On the other hand, content analyses from previous studies have identified a different pattern in media attributions of causal responsibility. In particular, these analyses found that Chinese newspaper coverage from 2000 to 2012 emphasized problem-solving responsibilities over causal attributions (Zhang & Jin, 2015).

The preceding reviews have brought attention to several domains which require more investigation. First, the prevailing approach in existing literature has been using qualitative methods to analyze how media framing related to attribution of responsibility for depression. Although qualitative research findings offer valuable insights and address key issues, further quantitative study is necessary to establish a more systematic and generalizable comprehension of the matter. Second, previous studies have primarily focused on the analysis of depression coverage in traditional print media, with limited attention given to the exploration and comparative analysis of coverage in social media. Social epidemiological approaches have provided evidence supporting the influence of individual, social network, and societal factord on health outcomes. However, it is worth noting that the majority of the study being done on responsibility frames in the media when it comes to health issues primarily concentrates on societal and individual responsibilities (Temmann et al., 2022).

2.4 Research Question

The present state of study on media content indicates that, particularly in the cultural context of China, the individual has been largely taken responsibility for health issues (Barry et al., 2013; Stefanik-Sidener, 2013). Compared to individual and societal responsibility, it remains unclear how much emphasis the media places on the responsibilities of social network in the context of mental health issues. Closing this research gap is essential, given the significant role social networks—and particularly social support—play in health outcomes, as highlighted by social epidemiological methods (Gallant, 2003; Sallis & Owen, 2015; Stokols, 1996). Considering the critical influence of social networks in both the development and treatment of depression (Levula et al., 2018), we chose to investigate how depression is reported in Chinese media, specifically on Sina Weibo. Moreover, previous studies revealed that the general orientation, target audience, and framing of depression of Chinese state-controlled media are different from those of market-oriented media (Yang A,2012; Zhang Y et al,2015). Therefore, with respect to the portrayal of responsibility framing for depression at individual, social network, and societal levels, we present the following question:

RQ1: To what extent does the media coverage attribute responsibilities for depression?

RQ2: What are the main causes of depression commonly depicted in media coverage?

RQ3: What solution for depression are most frequently highlighted in media coverage?

RQ4: What differences exist in how state-controlled and market-oriented media attribute causal and solution responsibilities for depression?

3. Method

3.1 Sampling

In order to address these questions, a quantitative content analysis was undertaken to investigate the coverage of depression on Chinese news media during the period spanning from 2020 to 2023. The study utilized Sina Weibo, a well-known Chinese social networking platform, as the sampling universe. We selected the top media organizations using the criteria from Sina Weibo's 2012 and 2013 Influence Ranking Lists (Sina Weibo Data Center, 2012, 2013). These rankings were based on a weighted total of factors: (1) the level of activity, measured by daily posts and reposts; (2) the engagement, reflected by reposts and comments on daily posts; (3) the number of active followers; and (4) the followers who had been followed at any given time (Sina Weibo Data Center, 2013). Beyond influence rankings, we also selected news media based on whether they were state-controlled or market-oriented, determined by reviewing the

organizations' published profiles or official websites. State-controlled and market-oriented news media differ in their operational models, content priorities, and target audiences. By selecting these two forms of media, a greater variety of media types can be encompassed, resulting in a study that is more comprehensive and applicable to a wider range of situations. Additionally, by comparing the frames employed by these two types of media, we can uncover how the same health issue is portrayed under different media systems. Consequently, examine the potential influence of these disparities on public opinions and attitudes. We have selected four categories of media accounts. From the list of newspapers, we selected People's Daily and Southern Metropolis Post, both top-ranking accounts, with the former being state-controlled and the latter market-oriented. Similarly, using the same criteria, we chose China Central Television News (state-controlled) and Phoenix Satellite TV (market-oriented) from the TV networks list. From the magazines list, we selected Half-Monthly Talk (state-controlled) and San Lian Life Weekly (market-oriented). Finally, from the news websites list, we included China News (state-controlled) and Punch (market-oriented).

The sampling period spanned from January 1, 2020, marking the emergence of a cluster of pneumonia cases in Wuhan, to October 1, 2023. The sample, collected on November 20, 2023, aimed to include more recent posts to provide user interaction data, such as reposts, comments, and likes, for analysis in a broader study project. According to our knowledge, no significant national events occurred during the data collection that could have had a notable impact on the results. Using the Chinese keyword "抑郁" (depressed), we identified posts containing either "抑郁" or "抑郁症" (depression), the latter being more normally used in both medical and nonmedical Chinese literature when referring to depression (Guo S & Guo K, 2005; Tian X & Cheng W, 2014). In total, we retrieved 835 posts from six different news media accounts. After analysing the entire text of the items, those belonging to any of the subsequent categories were excluded: (1) marginally relate (e.g., stories that briefly referred depression without delving into the issue in a substantive way) ;(2) duplicate items (e.g., the same story published on a different media platform at a different time of the same media).After removing 470 non-standard posts, we obtained a final sample of 365 news articles from People's Daily (n = 36), Southern Metropolis Post (n =32), China Central Television News (n =29), Phoenix Satellite TV (n =17), Half-Monthly Talk (n =66), San Lian Life Weekly (n = 81), China News (n=49) and Punch (n=55).

3.2 Measures

Table 2 outlines the methods used to assess the attribution of causal and solution responsibility for depression across individual, social network, and societal levels. Our approach involved four key steps. Initially, we compiled a comprehensive list of factors contributing to depression and potential solutions by consulting public health literature, medical research, epidemiological studies, and media reports (Goldberg, D., 2006; Richards, D., 2011; Daube, D., et al., 2023). Next, drawing from prior research on how media frames health responsibilities (e.g., Zhang, Y., et al., 2021), team members independently categorised the discoverd causes and solutions into categories at the individual, social network, and societal levels. We then held discussions to reach a consensus on these classifications, using operational definitions of the outcome measures as a guide. To ensure the relevance of these measures in the Chinese context, we conducted a thorough review of Chinese medical, public health literature, and media coverage on depression, followed by revisions to our operational definitions. Finally, we completed multiple rounds of coding and pretesting to guarantee consistency and accuracy across all coders.

3.3 Coding

Table 1 presents the coding instrument utilized in this study to measure a potential cause and solution options/ barriers for depression at individual, social network, and society levels. Additionally, reliability measures for all variables are included. In order to facilitate the clear differentiation of frames during the coding process, the coding manual provided comprehensive explanations and multiple illustrative examples for each frame.

Causal responsibility for depression was categorised as (1) individual, (2) social network, or (3) societal based on the WHO (2023) guidelines and the papers of Wiedicke (2022). Additional categories were developed during the coding process following open coding methods (Neuendorf, 2017). At the individual level, causes include biological and medical factors, genetics, demographics, lifestyle behaviors, and personal traumatic events. Social network-level causes encompass issues within interpersonal relationships, environmental stress from work, study, and living conditions, as well as other traumatic events. At the societal level, causes involve broader conditions such as general societal structures and socio-economic factors.

Solution responsibility for depression included, risk reduction measures are solution options (remedies) and measures that can be used (Iyengar, 1990; Semetko & Valkenburg, 2000) and were categorized into (1) individual, (2) social network, and (3) societal. When examining the solutions or barriers at the individual level, we categorized them into main categories: behavioral or lifestyle modifications such as physical activity and sleep patterns, along with medication or therapy. The social network presents solution options and barriers such as positive and negative social support, absence of social support, and stigmatisation. Finally, the solution options or barriers with society include

stigmatization, de-stigmatization, knowledge expansion, as well knowledge deficiency, alongside the presence or absence of public health care.

Each article was treated as a separate unit for analysis. Every frame was considered as a binary variable. According to Gollust and Lantz (2009), each cause or solution options as well as barrier, were assigned binary codes indicating their absent (0) or present (1). All the causes and solutions mentioned in the article were coded using this method. Subsequently, two trained coders analyzed the articles after pre-testing the codebook, addressing any unclear or ambiguous phrasing. Table 1 outlines the coding instructions and corresponding codes. To evaluate the reliability of the coders, a subsample of 30 articles was analyzed, allowing for the calculation of Krippendorff's alpha (2011). The intercoder reliability for all variables and categories was $r\alpha > 0.78$, indicating the data's reliability and appropriateness for interpretation (Krippendorff, 2004). Table 2 provides an overview of the reliability values.

Table 1. Media Attributions of Causal and Solution Responsibility (Variables, Examples and Intercoder Reliability)

Causes Attribution	Solution Responsibility
Individual Causes (ra $\geqslant$ .87)	**Individual Solution options/barriers (ra $\geqslant$ .93)**
• Biological and medical factors (*a lack of serotonin; genetic*)	• Behavioral/lifestyle changes (*physical and mental activity, sleep*)
• Demographics (*depression occurs more often in women than men*)	• Medication and Therapy（*Antidepressants* ）
• Individual behavior/lifestyle (*stressful lifestyle, compared to others, self-criticism, sense of injustice*)	**Social network Solution options/barriers (r$\alpha \geq$ .78)**
• Individual traumatic events (*"People going through trauma are more likely to develop depression."*)	• Positive consequences of social support (*A positive and supportive work environment；family's understanding*)
Social network Causes (r$\alpha \geq$ .85)	• Negative consequences of social support (*friends' or collogues help let me felt more pressure,*)
• Interpersonal relationship problems(*conflicts with family, friends, colleague and student, discordance, reduced activity, lack of self-care skills*）	• Lack of social support (*family leaving her alone with depression; lost job because depression*)
• Peripheral environmental stress (*constant Job/study/living-related stress may lead to burnout or even depression*)	• Stigmatization (*stigma and prejudice in family or work places*)
Societal Causes (r$\alpha \geq$ .83)	**Societal Solution options/barriers (r$\alpha \geq$ .81)**
• General working conditions (*occupational stress*)	• (De-)Stigmatization (*reducing the societal stigma*)
• General societal structures/ developments (*COVID-19 pandemic*)	• Lack of knowledge
• Socio-economic factors (*poverty, public policies Deficiency in public health, public awareness*	• Growth of knowledge (*introduce new, promising antidepressants*)
	• Lack of public health care
	• Public health care

4. Results

4.1 Role of the Social Network

Consistent with prior studies, our finding indicates that the Chinese media articles predominantly attribute the cause of depression to the individual and social network. Meanwhile, 61.3% (n = 119) addressed the social network as a contributing factor. In the term of solution responsibility, Chinese news media attributed more solution responsibility to social network (64.5%, n=151). as shown in Table 2.

Table 2. Individual, Social Network, and Societal Responsibility Attributions in Chinese Depression Coverage

Level of Responsibility	Causal Responsibility (n = 194)		Solution Responsibility (n =234)	
	n	% of Articles Attributing Causal Responsibility	n	% of Articles Attributing Solution Responsibility
Individual	131	67.5	93	39.7
Social Network	119	61.3	151	64.5
Society	99	51	147	62.8

Description: Between 2020 and 2023, Chinese news media published 194 articles focused on causal frames and 234 on solution frames. In this context, "n" denotes the number of articles that reference the relevant causes and solutions. The

percentage reflects how frequently these articles include responsibility frames for both causation and solutions.

Our research primarily aimed to investigate how much the media places the causal and solution responsibility for depression on social network. There is a notable lack of recognition of the relevance of the social network, according to social epidemiological perspectives on health (Bircher & Kuruvilla, 2014; Sallis & Owen, 2015). Regarding solution on social network level (see Table 3), it is of particular interest as to the positive consequences of social support (53%, n=80), However, solution barriers are accounting for the largest proportion, including negative consequences of social support (29.8%, n=45), stigmatization (28.5%, n=43), and lack of social support (17.9%, n=27). In our study, we incorporated the use of social network within the concept of responsibility frames. Consequently, we undertook a study to analyze the responsibility attributions for depression spanning three separate levels. The data presented in our study indicates the significance of social network as a level in shaping the perception of responsibility framing in relation to mental health issues. The media tends to treat the social network-level cause of depression with the same level of attention as individual-level causes. Furthermore, in terms of solutions, it may be argued that social support with positive consequences at social network-level is only surpassed by the provision of public health care offered by society. This conclusion agrees not only with the perspective of social epidemiology, but also with empirical findings about the evidence about the etiology of depression and solution options.

Table 3. Most Frequently Mentioned Solution on Social Network and Societal level

	Solution	n	% of solution options/barriers on social network level
Social Network(N=151)	Positive consequences of social support	80	53
	Negative consequences of social support	45	29.8
	Lack of social support	27	17.9
	Stigmatization	43	28.5
	De-Stigmatization	27	18.4
	Lack of knowledge	44	29.9
Societal(N=147)	Growth of knowledge	34	23.1
	Lack of Public health care	27	18.4
	Public health care	85	57.8

Description: Between 2020 and 2023, 151 and 147 news articles in Chinese media focused on solutions at the social network and societal levels, respectively. Each article was coded multiple times to capture various topics. In this context, "n" indicates the number of articles that discussed relevant solutions. The percentage represents the proportion of articles that included responsibility frames for solution options or barriers at the social network level (N = 151) and the societal level (N = 147).

4.2 Increasing Societal Attribution of Solution Responsibilities

As the table 3 show, society was primarily accountable for finding a solution, with public health care access being identified as the top priority, making up 57.8% (n=85) of all solution responsibilities among three levels. De-stigmatization (18.5%, n=27) and growth of knowledge (23.1%, n=34) were also be mentioned at the societal level. However, Lack of knowledge (29.9%, n=44) and public health care (18.4%, n=27) remained as the partly solution barriers in societal level.

It is significant that society is increasingly being held responsible for causal factors and is primarily responsible for solving problems. According to our research findings, there has been an observed increase in the frequency of reference to society-level solution in Chinese news media as time went on. Those solutions mostly focus on areas such as enhancing mental health care, expanding knowledge of depression and de-stagnating. This could be linked to current trends in embracing more societal perspectives in discussions and activities related to health policy. Notably, this includes the integration of depression screening into routine medical check-ups for students, pregnant women and mothers, as well as the provision of health insurance coverage for depression treatment. Consequently, by reframing depression as issue that extends beyond its medical aspects and involves social and public aspects, it is possible to create more opportunities to aid in coping at individual-level and to mobilize support at societal level (Zhang et al, 2016).

4.3 Individualization of Casual Responsibilities

Consistent with prior studies, our finding indicates that the Chinese media articles predominantly attribute the cause of depression to the individual. Particularly, 67.5% (n = 131) of all articles attributing causal responsibility identified individual as the primary cause (Table 2). At the individual level, behavioral/lifestyle changes (33.5%, n=65) and demographics (30%, n=58) were largely considered in all articles of attribution solution responsibility (see Table 4). Our study indicates that news media's Weibo articles mainly emphasize individual causes for depression, which outweigh societal-level attribution. The results confirm previous evidence regarding how responsibility for depression is

portrayed in the media in Western countries. They also indicate a trend where the main focus of the media on Weibo is on individualized aspects. This goes against the collectivist cultural inclination towards attributing responsibilities externally or contextually, which is common in Chinese culture. Traditional Chinese medical theory views the individual and their environment as a whole entity, with health resulting from interactions between internal and external factors (Parker et al., 2001). The emphasis on individual biogenetics as the primary explanatory model for depression highlights the influence of Western biomedicine on traditional Chinese medical philosophy and reflects the shift in China's public health famework.

A strong link existed between individualized attribution of mental health and the development of stigma (Weiner B. 2006), so the implication of individualizing depression responsibility on Sina Weibo for stigmatization are extremely concerning. More pertinently, Stigmatizing attitudes towards individuals with depression were associated with Weibo users' individualized causal attributions for the illness (Wang, W., & Liu, Y., 2016). Our findings further provide additional support for the importance and immediacy of such endeavors.

Table 4. Most Frequently Mentioned Risk Factors at the Individual Level

	n	% of casual at the individual level
Biological and medical factors	32	24.4
Demographics	58	44.3
Individual behavior/lifestyle	65	49.6
Individual traumatic events	21	16

Description: Between 2020 and 2023, 131 news articles in Chinese media attributed causality at the individual level. Each article was coded multiple times to address different topics. Here, "n" represents the number of articles that discussed relevant causes. The percentage reflects the proportion of articles that included responsibility frames for individual-level causality (N = 131).

4.4 Organizational Differences in Framing Depression Responsibilities

One other thing that could influence how the media attribute responsibility for depression is the influence of organizational pressure which as show on Table 5. Attributing causal responsibilities at three levels is different between state-controlled and market-oriented media; state-controlled media (43.3%) tended to put more emphasis on individual responsibility than market-oriented media (29.4%). Attributing causal responsibilities at three levels is different between state-controlled and market-oriented media; state-controlled media tended to put more emphasis on individual responsibility than market-oriented media. In addition to macro-level contextual factors, we believe that Chinese traditional news media may alter their framing strategy while sharing content on the Sina Weibo platform, which is a more individual-focused communication media. The state-controlled seems more aggressively adjust than market-oriented media. With regards to solution responsibility, state-controlled media put more solution responsibility (35.9%) on society. Societal-level solutions were featured in market-oriented media (34.6%) than state-controlled media (30%). Attributing responsibility for fixing societal problems related to depression in market-oriented media organizations, which may potentially have an opportunity to dispel stigma about depression. The Chinese government is confronted with the task of upholding its legitimacy and significance in the public domain due to a dynamic social environment with widening wealth gaps, increased social instability, economic slowdown from the COVID-19 epidemic, and challenges in controlling public opinion. The news media, particularly State-controlled media have a crucial role in pressuring journalists to highlight government efforts in addressing societal problems.

Table 5. Framing of Depression Responsibilities by State-controlled and Market-oriented Media

Type	% of articles Attributing Causal Responsibility			% of Articles Attributing Solution Responsibility		
	Individual Causal	Social Network Causal	Society Causal	Individual Solution	Social Network Solution	Society Solution
State Media (N=180)	43.3	26.3	21.1	25.2	30	35.9
Market Media (N=185)	29.4	29.9	30	14.5	34.6	32.9

Discription: The entries consist of the means and standard errors of depression causes and solutions provided in each article. n represents the total number of articles in each category of organizations.

5. Limitations and Future Research

Our study has several limitations. First, the sample was highly restricted and focused mainly on a single media platform. To expand the scope, future research should explore a broader array of media formats and channels, including entertainment films, videos, and documentaries that address depression. This approach would allow for the analysis of not only journalistic responsibility framing but also perspectives such as scientifically prepared information and user comments. Second, our study concentrated on a specific health issue, namely depression, which is caused by a complex interaction of individual factors and environmental risks, particularly those related to social networks. Future studies should consider examining other health or societal issues, like obesity, to gain a deeper understanding of how media represents social networks and interactions across different levels of responsibility. Although our research has investigated responsibility framing and analyzed how media attributes responsibility for depression at three distinct levels, it did not explore the interactions between these levels. Social epidemiologists suggest that an individual's health behaviors are often shaped by their family, work environment, social networks, and socio-economic status. Research on responsibility frames should consider the interaction between different levels of responsibility. Future studies should focus on exploring the relationships between causal factors and potential solutions in the context of responsibility frames. While this study examined the influence of several key frame-building elements, further process-oriented research is needed to directly measure how these factors shape responsibility framing in mental health issues. For instance, such research could investigate how political, cultural, and organizational dynamics affect the presentation and attribution of responsibility by observing newsroom practices, conducting in-depth interviews with Chinese journalists, and administering surveys. Additionally, this study could contribute to our understanding of the frame-building process by comparing how responsibility for depression is framed across different cultures, media systems, and communication contexts.

6. Conclusion

This study endeavor aimed to compile a picture throughout time of how prominent Chinese news media on the social media platform Sina Weibo have framed responsibility for depression, a major public health threats that poses a substantial threat to the Chinese population. A comprehensive and reliable measurement for responsibility frames, which are commonly regarded as generic frames (De Vreese et al., 2001), was created by our team. In consequence, this framing concept may potentially beneficial in addressing various health problems, including dementia, ADIS, and obesity, as well as inequality, climate change, and species extinction.

The study's results suggest that include the social network as a distinct aspect in the concept of responsibility framing is beneficial. This approach not only makes sense from a theoretical perspective, but also enhances understanding of how mental health responsibility is portrayed in media coverage. Particularly in the context of depression, family and friends have a significant influence in both causal and solution responsibility.

Our findings suggest that causes and treatment responsibilities associated with depression can be related to several factors at the individual, social network and society levels. However, the limited on individual casual responsibility fails to acknowledge the multitude of factors linked to the social network and the wider societal context. It also overlooks the significance of positive social support, as well as preventive measures and healthcare services at societal level, in addressing mental health illness such as depression. Therefore, we propose that news media organizations and health journalists take into account the variety of health determinants, rather than exaggerating the significance of specific factors, in order to provide information pertaining to a wider range of prevention and solution options.

Authors contributions

Phd. Xiaoxia Ma and Prof. Mastura Mahamed were responsible for study design and revising. Phd. Xiaoxia Ma was responsible for data collection and drafted the manuscript. Prof. Mastura Mahamed and Prof. Aryaty Alwie revised it. All authors read and approved the final manuscript.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Redfame Publishing.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

Open access

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (http://creativecommons.org/licenses/by/4.0/).

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

References

Barry, C. L., Brescoll, V. L., & Gollust, S. E. (2013). Framing Childhood Obesity: How Individualizing the Problem Affects Public Support for Prevention. *Political Psychology*, *34*(3), 327-349. https://doi.org/10.1111/pops.12018

Bircher, J., & Kuruvilla, S. (2014). Defining health by addressing individual, social, and environmental determinants: New opportunities for health care and public health. *Journal of Public Health Policy*, *35*(3), 363-386. https://doi.org/10.1057/jphp.2014.19

Braveman, P., & Gottlieb, L. (2014). The Social Determinants of Health: It's Time to Consider the Causes of the Causes. *Public Health Reports*, *129*(1_suppl2), 19-31. https://doi.org/10.1177/00333549141291S206

Corrigan, P. W. (2000). Mental health stigma as social attribution: Implications for research methods and attitude change. *Clinical Psychology: Science and Practice*, *7*(1), 48-67. https://doi.org/10.1093/clipsy.7.1.48

Cotten, S. R., & Gupta, S. S. (2004). Characteristics of online and offline health information seekers and factors that discriminate between them. *Social Science & Medicine*, *59*(9), 1795-1806. https://doi.org/10.1016/j.socscimed.2004.02.020

Dahlgren, G., & Whitehead, M. (1991) (n.d.). *Policies and strategies to promote social equity in health*.

De Vreese, C. H. (2014). Mediatization of News: The Role of Journalistic Framing. In F. Esser & J. Strömbäck (Eds.), Mediatization of Politics (pp. 137-155). Palgrave Macmillan UK. https://doi.org/10.1057/9781137275844_8

Depression. (2014, April 5). Nimh.nih.gov. Retrieved from: https://data.weibo.com/report/reportDetail?id=159

Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication,* 43(4), 51-58. https://doi.org/10.1111/j.14602466.1993.tb01304.x

France, C. M., Lysaker, P. H., & Robinson, R. P. (2007). The 'chemical imbalance' explanation for depression: Origins, lay endorsement, and clinical implications. *Professional Psychology: Research and Practice*, *38*(4), 411-420. https://doi.org/10.1037/0735-7028.38.4.411

Gallant, M. P. (2003). The Influence of Social Support on Chronic Illness Self-Management: A Review and Directions for Research. *Health Education & Behavior*, *30*(2), 170-195. https://doi.org/10.1177/1090198102251030

Gariépy, G., Honkaniemi, H., & Quesnel-Vallée, A. (2016). Social support and protection from depression: Systematic review of current findings in Western countries. *British Journal of Psychiatry*, *209*(4), 284-293. https://doi.org/10.1192/bjp.bp.115.169094

Gollust, S. E., & Lantz, P. M. (2009). Communicating population health: Print news media coverage of type 2 diabetes. *Social Science & Medicine*, *69*(7), 1091-1098. https://doi.org/10.1016/j.socscimed.2009.07.009

Goodman, R. J., Samek, D. R., Wilson, S., Iacono, W. G., & McGue, M. (2019). Close relationships and depression: A

developmental cascade approach. *Development and Psychopathology*, *31*(04), 1451-1465. https://doi.org/10.1017/S0954579418001037

Guo, S., & Guo, K. (2005). Research progress on depression. *Chin J Clin Rehabil., 9*(4),131-3. (in Chinese).

Heaney, C. A., & Israel, B. A. (2008). Social networks and social support. In K. Glanz, B. K. Rimer & K. Viswanath (Eds.), Health behavior and health education: Theory, research and practice (pp. 189-210). John Wiley & Sons, Ltd.

Heley, K., Kennedy-Hendricks, A., Niederdeppe, J., & Barry, C. L. (2020). Reducing Health-Related Stigma Through Narrative Messages. *Health Communication*, *35*(7), 849-860. https://doi.org/10.1080/10410236.2019.1598614

Hendryx, M., Nicholson, W., Manson, J. E., Kroenke, C. H., Lee, J., Weitlauf, J. C., Garcia, L., … & Luo, J. (2020). Social Relationships and Risk of Type 2 Diabetes Among Postmenopausal Women. *The Journals of Gerontology: Series B*, *75*(7), 1597-1608. https://doi.org/10.1093/geronb/gbz047

Iyengar, S. (1990). Framing responsibility for political issues: The case of poverty. *Political Behavior*, *12*(1), 19-40. https://doi.org/10.1007/BF00992330

Kim, S. H., & Anne Willis, L. (2007a). Talking about Obesity: News Framing of Who Is Responsible for Causing and Fixing the Problem. *Journal of Health Communication*, *12*(4), 359-376. https://doi.org/10.1080/10810730701326051

Krippendorff, K. (2004). *Content analysis: An introduction to its methodology* (2. ed., [Nachdr.]). Sage Publ.

Levula, A., Harré, M., & Wilson, A. (2018). The Association Between Social Network Factors with Depression and Anxiety at Different Life Stages. *Community Mental Health Journal*, *54*(6), 842-854. https://doi.org/10.1007/s10597-017-0195-7

Link, B. G., & Phelan, J. (1995). Social Conditions as Fundamental Causes of Disease. *Journal of Health and Social Behavior*, *35*, 80. https://doi.org/10.2307/2626958

Major, L. H. (2009). Break it to me harshly: The effects of intersecting news frames in lung cancer and obesity coverage. *Journal of health communication, 14*(2), 174-188. https://doi.org/10.1080/10810730802659939

Marmot, M., & Allen, J. J. (2014). Social Determinants of Health Equity. *American Journal of Public Health*, *104*(S4), S517-S519. https://doi.org/10.2105/AJPH.2014.302200

Miller, T., & DiMatteo, R. (2013). Importance of family/social support and impact on adherence to diabetic therapy. *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy*, 421. https://doi.org/10.2147/DMSO.S36368

Neuendorf, K. A. (2017). *The Content Analysis Guidebook*. SAGE Publications, Inc. https://doi.org/10.4135/9781071802878

Parker, G., & Gladstone, G. (2001). Depression in the Planet's Largest Ethnic Group: The Chinese. *Am J Psychiatry*.

Schnittker, J. (2008). An uncertain revolution: Why the rise of a genetic model of mental illness has not increased tolerance. *Social Science & Medicine*, *67*(9), 1370-1381. https://doi.org/10.1016/j.socscimed.2008.07.007

Sina Weibo Data Center. 2012 Weibo influence ranking list. 2013 January. Available from: http://data.weibo.com/summary/2012year/influence

Slopen, N. B., Watson, A. C., Gracia, G., & Corrigan, P. W. (2007). Age Analysis of Newspaper Coverage of Mental Illness. *Journal of Health Communication*, *12*(1), 3-15. https://doi.org/10.1080/10810730601091292

Starr, T. S., & Oxlad, M. (2021). News media stories about cancer on Facebook: How does story framing influence response framing, tone and attributions of responsibility? *Health: An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine*, *25*(6), 688-706. https://doi.org/10.1177/1363459320912817

Stefanik-Sidener, K. (2013). Nature, Nurture, or That Fast Food Hamburger: Media Framing of Diabetes in the *New York Times* from 2000 to 2010. *Health Communication*, *28*(4), 351-358. https://doi.org/10.1080/10410236.2012.688187

Temmann, L. J., Wiedicke, A., Schaller, S., Scherr, S., & Reifegerste, D. (2021). A Systematic Review of Responsibility Frames and Their Effects in the Health Context. *Journal of Health Communication*, *26*(12), 828-838. https://doi.org/10.1080/10810730.2021.2020381

Tian, X., & Cheng, W. (2014) From melancholia to depression: in the socio-cultural views of diseases. *Med Philos.*, *35*(2A), 79-81. (in Chinese).

Uher, R. (2008). The implications of gene–environment interactions in depression: Will cause inform cure? *Molecular*

Psychiatry, *13*(12), 1070-1078. https://doi.org/10.1038/mp.2008.92

Varma, P., Junge, M., Meaklim, H., & Jackson, M. L. (2021). Younger people are more vulnerable to stress, anxiety and depression during COVID-19 pandemic: A global cross-sectional survey. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, *109*, 110236. https://doi.org/10.1016/j.pnpbp.2020.110236

Vyncke, B., & van Gorp, B. (2018). An experimental examination of the effectiveness of framing strategies to reduce mental health stigma. *Journal of Health Communication, 23*(10-11), 899-908. https://doi.org/10.1080/10810730.2018.1538272

Wang, W., & Liu, Y. (2016). Discussing mental illness in Chinese social media: The impact of influential sources on stigmatization and support among their followers. *Health Communication*, *31*(3), 355-363. https://doi.org/10.1080/10410236.2014.957376

Weiner, B. (2006). *Social motivation, justice, and the moral emotions.* Psychology Press. https://doi.org/10.4324/9781410615749

WHO. (2022). *WHO highlights urgent need to transform mental health and mental health care.* World Health Organization.https://www.who.int/news/item/17-06-2022-who-highlights-urgent-need-to-transform-mental-health-and-mental-health-care

Wiedicke, A., Reifegerste, D., Temmann, L. J., & Scherr, S. (2022). Framing Depression: Individual, Societal, and Social Network Responsibility Attributions in Media Coverage. *European Journal of Health Communication*, *3*(3), 92-117. https://doi.org/10.47368/ejhc.2022.305

Wu, K., & Wei, X. (2020). Analysis of Psychological and Sleep Status and Exercise Rehabilitation of Front-Line Clinical Staff in the Fight Against COVID-19 in China. *Medical Science Monitor Basic Research*, *26*. https://doi.org/10.12659/MSMBR.924085

Yadavendu, V. K. (2001). Social construction of health: Changing paradigms. *Economic and Political Weekly, 36*(29), 2784-2795.

Yang, A. (2012). *Understanding the Changing Chinese Media: Through the Lens of Crises*.

Zhang, E., & Fleming, K. (2005). Examination of Characteristics of News Media under Censorship: A Content Analysis of Selected Chinese Newspapers' SARS Coverage. *Asian Journal of Communication*, *15*(3), 319-339. https://doi.org/10.1080/01292980500261639

Zhang, Y., & Jin, Y. (2015). Who's responsible for depression? Chinese and US newspaper framing of causal and problem-solving responsibilities for depression, 2000–2012. *The Journal of International Communication*, *21*(2), 204-225. https://doi.org/10.1080/13216597.2015.1052532

Zhang, Y., Jin, Y., & Tang, Y. (n.d.). *A Public Health Threat and Attribution of Responsibilities in Chinese News Media, 2000-2012*.

Zhang, Y., Jin, Y., Stewart, S., & Porter, J. (2016). Framing responsibility for depression: How U.S. news media attribute causal and problem-solving responsibilities when covering a major public health problem. *Journal of Applied Communication Research*, *44*(2), 118-135. https://doi.org/10.1080/00909882.2016.1155728

Zhang, Y., Lu, Y., Jin, Y., & Wang, Y. (2021). Individualizing mental health responsibilities on Sina Weibo: A content analysis of depression framing by media organizations and mental health institutions. *Journal of Communication in Healthcare*, *14*(2), 163-175. https://doi.org/10.1080/17538068.2020.1858220