

## Research Report

# A Thematic Analysis of Weibo Topics (Chinese Twitter Hashtags) Regarding Older Adults During the COVID-19 Outbreak

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## Abstract

**Objectives:** We explored the portrayal of older adults and the public response to topics concerning older adults during the COVID-19 pandemic in Chinese social media (Weibo topics, equivalent to hashtags on Twitter). We also explored the temporal trends of dominant themes to identify changes over time.

**Methods:** Topics related to older adults were searched in the Weibo topic search engine between January 20 and April 28, 2020. Overall, 241 topics and their view frequency and comment frequency were collected. Inductive thematic analysis was conducted to classify the topics into themes. The popularity of each theme was also analyzed. In addition, the frequency with which each theme appeared during the 3 major stages of the pandemic (outbreak, turnover, and post-peak) was reported.

**Results:** Six main themes were identified. “Older adults contributing to the community” was the most prominent theme with the highest average comment frequency per topic. It was also the most dominant theme in the first stage of the pandemic. “Older patients in hospitals” was the second most prominent theme and the most dominant theme in the second and third stages of the pandemic. The percentage of topics with the themes “Care recipients” and “Older adults caring for the young” increased over time.

**Discussion:** The portrayal of older people as being warm, competent, and actively exercising their agency is prevalent on Weibo. The Weibo-viewing public shows signs of interest in intergenerational solidarity during the pandemic in China. These findings are different from findings reported by studies conducted in the West.

**Keywords:** COVID-19, Older adults, Social media, Stereotypes, Weibo

The portrayal of older adults in the media can help us better understand the public discourse about and situation of older adults during the COVID-19 pandemic. At the same time, media portrayals may help shape people's attitudes about older adults (Fraser et al., 2020). Ayalon et al. (2020) showed that various media reports worldwide during the pandemic have portrayed older people as

helpless, frail, and incompetent to contribute to society. Moreover, Jimenez-Sotomayor et al. (2020) noticed that ageist stereotypes and attitudes have been widely propagated on Twitter. Although the COVID-19 outbreak started in China, little has been written about the portrayal of older adults during the pandemic in China. Past research has shown that China tends to have more positive attitudes

toward older adults than some Western cultures (Levy & Langer, 1994; Yoon et al., 2000). The present study aims to explore the portrayal of older adults during the COVID-19 pandemic in Chinese social media to better understand the depiction of older people in China. This information is subsequently used against published findings from Western countries to better examine potential cultural differences in how older adults are portrayed.

This research specifically focuses on Weibo, a popular Chinese social media platform similar to Twitter (Li et al., 2020). We identified major themes in all Weibo topics (the Chinese equivalent of hashtags on Twitter) related to older adults during the COVID-19 pandemic as well as the popularity of each theme based on public views and comments. We also sought to explore the temporal trends of dominant themes to identify changes in the portrayal of older adults over time. The findings of this study may contribute to an understanding of the situation of older adults during the COVID-19 pandemic from the perspective of China, as well as cultural differences in the portrayal of older adults during the COVID-19 pandemic. The findings might also be used to help shape public opinion about older adults during the pandemic in China.

## Design and Methods

### Data Collection

Retrieval of data from the Weibo platform occurred between March 1, 2020 and April 30, 2020. We first searched the Weibo topic search engine using the following keywords: “老人 (*older people*)”, “老年人 (*old-aged people*)”, “奶奶 (*grandmother*)”, “爷爷 (*grandfather*)”, “老奶奶 (*old grandmother*)”, “老爷爷 (*old grandfather*)”, “老太 (*old woman*)”, “老头 (*old man*)”, and “岁 (*-year-old*)”. We then went over the search results and manually selected topics that were related to COVID-19 in China during the period from January 20 to April 28, 2020. This period covers pivotal stages of the COVID-19 pandemic as described below. Overall, 241 topics were collected.

Two index numbers shown on each Weibo topic homepage were collected. “View frequency” is the total number of times each post that includes a relevant topic was viewed. This number is highly related to the number of posts and thus reflects how widely the topic was disseminated online. “Comment frequency” is the total number of comments under every post that addresses a relevant topic. This may indicate the extent of public involvement in the topic (Li et al., 2020; TranslateMedia, 2019). The creation date of each topic was collected on the homepage of each Weibo topic as well.

### Data Analysis

We merged identical topics and reached 188 unique topics. Thematic analysis was conducted using an inductive

approach and following the instructions proposed by Braun and Clarke (2006). This process was conducted independently by two reviewers and consensus was reached via consultation with two additional team members.

To understand the popularity of each theme, we calculated the average view frequency by adding up the view frequency of all topics under the same theme and dividing it by the topic frequency. We then calculated the average comment frequency using the same approach. Finally, to explore the temporal trend of salient themes, we sorted the topics chronologically and classified them into the three stages of the COVID-19 pandemic. The definition of each stage is based on a white paper published by the State Council Information Office of China (SCIO, 2020), which marks January 20–February 20 as the period of COVID-19 outbreak in China, February 21–March 17 as the turnover period, when newly confirmed domestic cases dropped to single digits, and March 18–April 28 as the post-peak period in China when Wuhan reportedly had zero newly confirmed cases. We then calculated the percentage of themes in each stage.

## Results

### Main Themes Concerning Older Adults and COVID-19 Based on Weibo Topics

We identified six main themes based on the 188 unique topics, each representing an image of older adults during the COVID-19 pandemic in China (Table 1). The definitions of each theme and subtheme are detailed in Table 1. The most prominent theme was termed “Contributing to the community” ( $n = 46$ , 24%). Second, and slightly less prevalent than the first theme, was the theme “Older patients in hospitals” ( $n = 43$ , 23%). The third prominent theme was “Older adults as a vulnerable group” ( $n = 33$ , 18%). The fourth theme was “Care recipients” ( $n = 28$ , 15%). The fifth theme was “Caring for the young” ( $n = 20$ , 11%). The theme “Public health rule breakers and followers” ( $n = 18$ , 10%) was the least prominent.

### Themes’ Popularity Based on Public Views and Comments

The popularity of each theme was analyzed by calculating the average view frequency and comment frequency per topic calculated per each relevant theme (Table 2). The theme of older adults as “Public health rule breakers and followers” accounted for the smallest portion among all themes (10%), but attracted the highest average number of views per topic (116 million). The most prominent theme “Contributing to the community” (24%) attracted the most public comments per topic (14,000). It is worth noting that the topic “#84-year-old Dr. Nanshan Zhong fights at the frontline against the pandemic again#,” with the highest public views (1 billion) and comments (328,000) among all the topics we collected,

**Table 1.** Themes of Weibo Topics on Older Adults During the COVID-19 Pandemic in China

Theme	Definition of the theme	No. of topics under a theme	% of topics	Subtheme	No. of topics under a subtheme	Definition of the subtheme
Contributing to the community	Older adults are actively engaged in fighting against COVID-19 through donations and voluntary services.	46	24%	Donation of services	21	Older adults voluntarily take action to support their communities.
				Donation of money and goods	20	Older adults donate money and goods to fight COVID-19.
				Donation rejection	5	The society sympathetically refuses monetary donations from older adults.
Older patients in hospitals	Older adults who were infected by the COVID-19 pandemic and their life and experiences before/after hospitalization.	43	23%	Full of optimism	17	Older adults recovered from COVID-19 against all odds in an optimistic manner.
				Full of love	13	The loving older couples who supported each other in fighting against the disease.
				Full of appreciation	13	The cured older adults who expressed their sincere gratitude to the medical professionals.
Older adults as a vulnerable group	Protection guidance, policies, and announcements regarding the infection and death of older adults from official organizations.	33	17%	Special protection guidance	14	Introduction of special protection guidance by official health care resources.
				Infection, death, and hard life	13	Stories of older adults' COVID-19 infection and death outside the hospital, and living difficulties during the lockdown.
Care recipients	Older people received respect and heartwarming care during lockdown.	28	15%	Facts and policies	6	Official announcements regarding the death of older adults and the policies prioritizing older adults in medical treatment.
				Special care in hospital	19	Older people receive heartwarming care provided by young hospital staff.
				Special care during quarantine	9	Older people receive special care from society to overcome the difficulties during quarantine.
Caring for the young	Older adults take care of the younger generations during the pandemic.	20	11%	Taking care of young family members	8	Older adults play the role of family caregivers during the pandemic.
				Emotional expressions toward the young	7	Older people provide emotional support to young people.
				Giving medical resources away	5	Some older individuals rejected medical treatment in order to save medical resources for the young.
Public health rule breakers and followers	Older adults (not) adhering to public health measures in China (e.g., facemask-wearing, physical distancing, and quarantine).	18	10%	Public health rule breakers	14	Older adults who do not adhere to the public health measures.
				Public health rule followers	4	Older adults who adhere to the public health measures.

Note: "% of topics" is the percentage of topics under one theme among 188 nonduplicate topics.

**Table 2.** Themes' Popularity and Most Popular Topic Under Subthemes

Theme	Average view frequency per topic (in million)	Average comment frequency per topic (in thousand)	Subtheme	Most popular (highest view frequency) topic under a subtheme	View frequency (in million)	Comment frequency (in thousand)
Contributing to the community	55	14	Donation of services	An 84-year-old Dr. Nanshan Zhong fight at the frontline against the pandemic again.	1,060	328
			Donation of money and goods	An older person donated 30-year-savings 200,000 RMB to help fight the COVID-19 pandemic.	170	67
			Donation rejection	Police politely rejected donation from an older woman in her 80s.	67	14
Older patients in hospitals	36	4	Full of optimism	A 98-year-old renowned astronomer is cured.	293	13
			Full of love	An 87-year-old grandpa feeds his old wife during infusion treatment.	66	20
Older adults as a vulnerable group	43	9	Full of appreciation	Grandma kneels down to thank the medical team.	200	14
			Special protection guidance	Do not recommend older adults to dance in the plaza with masks on.	96	13
			Infection, death, and hard life	A 70-year-old man died at home with a 6-year-old grandson left alone.	363	52
			Facts and policies	The average age of death from COVID-19 in Wuhan is 68.	330	48
Care recipients	16	2	Special care in hospital	Wuhan nurse feeding older adults wearing a protection suit.	37	2
Caring for the young	49	8	Special care during quarantine	Each older adult is assigned one parking spot for sunbath.	304	34
			Taking care of young family members	A 90-year-old mother accompanies her infected son for 4 days and nights	180	40
			Emotional expressions toward the young	A letter from Grandpa Nanshan Zhong to young children.	400	47
			Medical resources give away	A 90-year-old man refuses treatment fearing wasting medical resources.	22	6
Public health rule breakers and followers	116	12	Public health rule breakers	A diagnosed older adult concealed the information and caused more than 100 close contacts.	693	69
			Public health rule followers	A 94-year-old mother reported her 65-year-old daughter who had gathered a crowd to play mahjong.	464	22

Notes: Average view (comment) frequency per topic of each theme is calculated by adding up the view (comment) frequency of all topics under the same theme and dividing it by the nonduplicate topic frequency. View frequency sums the number of times each post that includes the relevant topic was viewed. Comment frequency sums the number of comments under each post that includes the topic.

**Table 3.** Frequency and Percentage of Topics Under Each Theme During Different Stages of the COVID-19 Pandemic in China

Theme	Stage 1: Outbreak January 20–February 20	Stage 2: Turnover February 21–March 17	Stage 3: Post-peak March 18–April 28	Total
Contributing to the community	28 (32%)	14 (17%)	3 (17%)	45
Older patients in hospitals	16 (18%)	21 (25%)	7 (39%)	44
Older adults as a vulnerable group	20 (23%)	13 (16%)	0 (0%)	33
Care recipients	12 (14%)	13 (16%)	3 (17%)	28
Caring for the young	2 (2%)	13 (16%)	5 (28%)	20
Public health rule breakers and followers	9 (10%)	9 (11%)	0 (0%)	18
Total	87	83	18	188

Notes: Topic frequency is the number of nonduplicate topics under each theme during a particular stage. Percentage of topics is the percentage of topics under each theme among nonduplicate topics created during a particular stage. Stage 1 is the outbreak of COVID-19 in China between January 20 and February 20. Stage 2 is the turnover period of COVID-19 in China between February 21 and March 17. Stage 3 is the post-peak of COVID-19 in China between March 18 and April 28.

is under the theme “Contributing to the Community.” The public responded least to older adults as “Care recipients,” with the lowest average view frequency of 16 million per topic and comment frequency of about 2,000 per topic.

### Themes’ Temporal Trends

Table 3 presents the temporal trends of the six themes. During Stage 1 of the pandemic, the theme of “Contributing to the community” was the most dominant (32%). In the second stage, the theme of “Older patients in hospitals” accounted for the largest portion (25%), perhaps as there were more recovery cases during the second phase. Compared to the first stage, the portrayal of older adults in the second stage was more balanced, with most themes capturing relatively similar proportions of the topics posted. In the third stage, the total number of topics dropped considerably (from 87 and 83 in the first two stages, respectively, to 18 in the third stage), possibly because the public’s attention to the pandemic has declined over time. Nonetheless, topics classified under “Older patients in hospitals” were still the most dominant in the third stage (39%). The percentage of topics about “Older adults caring for the young” greatly increased from Stage 1 to Stage 3 (2%–28%), whereas the percentage of topics on “Older adults as a vulnerable group” and “Public health rule breakers and followers” dropped from 10%–11% to zero.

### Discussion

The COVID-19 pandemic has intensified intergenerational conflict in many parts of the world (Jimenez-Sotomayor et al., 2020). Older adults have been identified as the most vulnerable group and have been depicted as exhausting health care resources (Ayalon et al., 2020). In contrast to this Western impression, the most prominent theme of topics dealing with older adults during the COVID-19

pandemic outbreak—older adults as “Contributing to the community”—on the Chinese social media website, Weibo, illustrates that older adults in China have been portrayed as actively exercising their agency to reduce the impact of COVID-19 through their own efforts and abilities. This theme covered most of the older adult-related content on Weibo, especially at the beginning of the pandemic.

The Stereotype Content Model suggests that stereotypes of groups of people are formed along two dimensions: warmth and competence (Cuddy et al., 2002). Older adults are usually perceived as being high in warmth but low in competence, which further leads to feelings of pity and sympathy toward older people (Fiske et al., 2002; North & Fiske, 2012, 2013). In contrast to these findings, a number of topics we found on Weibo under the theme of older adults as “Contributing to the community” stress older adults as “warm” and “competent.” In addition, it reflects altruism among older adults. Similarly, the theme of “Caring for the young” and the subtheme of “Public health rule followers” also showed that older adults were being portrayed as competent and actively engaged in the fight against the virus. These depictions of older adults are in contrast to the traditional stereotypes of older adults in Western countries. Moreover, our findings show that these depictions greatly attract public attention and endorsement. For example, the average view frequency and comment frequency under the theme of “Contributing to the community” were the highest among the themes we identified. In the second most prominent theme of “Older patients in hospitals,” the topics portrayed older people with a focus on their high warmth, rather than low competence. For example, many older patients were depicted as being full of optimism, love, and appreciation. When older adults were perceived as the group most vulnerable to the COVID virus, they were also often depicted as conveying encouragement and hope during the pandemic in China.

Finally, although the total number of topics dropped during the third stage, there was a substantial increase in the percentage of topics related to the theme of older adults taking care of the young (“Caring for the young”: from 2% to 28%) and a slight increase in the percentage of topics related to young people taking care of older people (“Care recipients”: from 14% to 17%) over time. This may imply that the public in China was more focused on intergenerational solidarity than on other issues, such as “Older adults as a vulnerable group,” which fell from 23% to 0%, as the pandemic evolved.

The results of this research are substantially different from findings reported by Jimenez-Sotomayor et al. (2020), who found that Twitter content regarding older adults tends to be ageist and offensive and potentially instigates intergenerational conflict. The difference between the two social media platforms may be due to the culture of filial piety in Chinese society, which stresses respect for older adults and the importance of parent–child relationships. Moreover, as suggested by Vauclair et al. (2017), Chinese people tend to have more positive conceptions of older people, especially in terms of competence and admiration, than Western people. Another reason could be the fact that most topics on Weibo are initially generated by organizational accounts rather than by private accounts. In order for organizations to maintain a certain public image, it is possible that they report more positive and less ageist content than private accounts (Oscar et al., 2017).

## Conclusions

Our findings show that the portrayal of older people as actively exercising their own agency and being warm and competent was prevalent in Weibo topics. Moreover, our analysis shows an increasing focus on intergenerational solidarity over the course of the COVID-19 pandemic in China. The findings contribute to the best of our knowledge about older adults as well as cultural differences under the COVID-19 pandemic. Information obtained in this study may guide policy stakeholders, educators, and marketing agencies who may wish to affect public opinion concerning older adults.

The study’s limitations should be noted. First, we only explored view and comment frequencies as public responses, without considering the actual content of the comments. Future research should analyze the content of the posts to get a more detailed picture of public attitudes about older adults during the COVID-19 pandemic in China. Another limitation concerns our focus on a single country and a single social media platform. Although we attempted to compare our findings to the existing literature, future research will benefit from embarking on a truly cross-national comparison of social media content.

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## Conflicts of Interest

None declared.

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