

Research on Factors Influencing WeChat Users' Information Publishing Behavior during Sudden Natural Disasters: A Case Study of the “7.20 Henan Rainstorm” Disaster Postprint

Authors: Fang Jie, Cui Lanlan

Date: 2023-10-08T00:00:00+00:00

Abstract

[Purpose/Significance] This study investigates the influencing factors of WeChat users' posting behavior regarding sudden natural disaster events, aiming to enhance users' information interaction experience and provide theoretical reference for relevant departments to effectively guide public opinion and resolve crises. [Method/Process] Based on the Uses and Gratifications Theory, an initial model of influencing factors on WeChat users' natural disaster information posting behavior was constructed. Taking the “July 20 Henan rainstorm” disaster event as a case study, data were collected through questionnaire surveys, and SPSS26 and SPSSAU were utilized to test the initial model and establish regression equations. A comparative analysis was conducted on the similarities and differences of influencing factors between users' information posting behavior in WeChat Moments and WeChat groups regarding sudden natural disaster events. [Results/Conclusion] The findings indicate that both in WeChat Moments and WeChat groups, emotional needs have a significant negative impact on users' natural disaster information posting behavior, while stress relief needs have a significant positive impact. However, social integration needs do not affect users' natural disaster information posting behavior in WeChat Moments, and personal integration needs do not affect users' natural disaster information posting behavior in WeChat groups.

Full Text

Preamble

Research on Influencing Factors of WeChat Users' Information Publishing Behavior in Sudden Natural Disaster Events—A Case Study of the “7.20 Henan Rainstorm” Disaster

Fang Jie, Cui Lanlan

School of Information Management, Xinjiang University of Finance and Economics, Urumqi 830012

[Purpose/Significance] This study investigates the factors influencing WeChat users' decisions to publish information related to sudden natural disaster events, aiming to enhance user information interaction experiences and provide theoretical guidance for relevant authorities to effectively guide public opinion and mitigate crises. **[Method/Process]** Grounded in the Uses and Gratifications Theory, we constructed an initial model of influencing factors for WeChat users' natural disaster information publishing behavior. Using the "7.20 Henan rainstorm" disaster as a case study, we collected data through questionnaire surveys and tested the initial model using SPSS 26 and SPSSAU to establish regression equations. The study compared and analyzed the similarities and differences in influencing factors between users' information publishing behaviors in WeChat Moments and WeChat groups. **[Result/Conclusion]** The findings reveal that both in WeChat Moments and groups, emotional needs exert a significant negative influence on users' natural disaster information publishing behavior, while stress relief needs demonstrate a significant positive effect. However, social integration needs do not affect users' natural disaster information publishing behavior in Moments, and personal integration needs do not influence such behavior in groups.

Keywords: WeChat Moments; WeChat groups; Uses and Gratifications Theory; sudden natural disasters; information publishing behavior; influencing factors

Introduction

Sudden natural disasters refer to abrupt natural phenomena that endanger human survival or damage living environments [1]. In recent years, China has experienced frequent natural disasters, including the "2018 Shouguang flood in Shandong," "2019 Typhoon Lekima," and "2020 abrupt temperature drop event." These disasters pose severe threats to economic development and public safety, while the dissemination of related information creates significant social impacts that cannot be ignored. Internet-based social media plays a crucial role in public information dissemination during sudden natural disasters [2]. According to Tencent's 2020 Annual Report, WeChat's global user base has exceeded 1.2 billion, with over 120 million users posting content on WeChat Moments daily [3], establishing WeChat as China's most influential social platform [4]. Unlike Weibo's weak-tie relationships, WeChat's strong-tie connections foster greater interactivity and intimacy among users, with higher similarity and relevance between group members and more frequent interactions, making information dissemination more difficult to control [5]. Moreover, given the extremely time-sensitive nature of disaster information, WeChat users' publishing behaviors

significantly influence the effectiveness of critical information propagation. As two of WeChat's most popular features, Moments and groups serve as primary channels for users to acquire and disseminate disaster-related information [6]. Therefore, examining the factors influencing WeChat users' information publishing behaviors in these two contexts during natural disasters, and the magnitude of their effects, can enhance user information interaction experiences, improve critical information dissemination efficiency, and provide theoretical references for authorities to guide public opinion and resolve crises effectively.

Related Research on Factors Influencing Netizens' Information Publishing Behavior

Netizens' information publishing behavior represents a stimulus-response reaction to received information, with information value and personal emotional perception being two major influencing factors [7]. J. A. Berger et al. [8] found that information evoking high emotional arousal spreads more widely. Zhang Yue [9] proposed that perceived information usefulness positively influences users' information sharing behavior. Recent scholars have employed various theoretical frameworks to analyze influencing factors. Bilibili's bullet-comment video platform has become a recent research hotspot. For instance, Feng Yuru et al. [10] found that self-efficacy and trust significantly positively influence users' bullet-comment publishing behavior. Wang Yunzhi et al. [11] proposed that perceived satisfaction, perceived ease of use, and perceived interaction positively influence users' conforming information comment behavior. Research on traditional social media users' information publishing behavior has also proliferated. Li Xinyue et al. [12] found that information seeking, self-expression, and altruistic need satisfaction positively influence elderly users' WeChat information sharing behavior. Huo Mingkui et al. [13] discovered that emotion, perceived information usefulness, and perceived information interestingness influence social network users' positive energy information sharing willingness. Chen Juan et al. [14], through in-depth interviews, proposed that elderly people exhibit multiple sharing motivations when sharing health information based on the strength of information appeals and relationship appeals. Xiong Li et al. [15] identified information usefulness, information value perception, social circle identification, and sharing attitude as influencing factors for network information sharing behavior during emergencies.

Related Research on Sudden Natural Disaster Events on Social Platforms

Recent studies on sudden natural disaster events on social platforms have primarily employed sampling surveys internationally, such as research on the Eruption of Vesuvius event [16]. Domestic scholars have mainly utilized comprehensive data analysis, comparative research, deep learning, and complex network methods. Jin Zhanyong et al. [17] used comprehensive data analysis to conduct empirical research on network public opinion dissemination during the "6·23

Yancheng tornado event.” Ma Yingxue et al. [18] employed machine learning and deep learning methods to extract and cluster effective Weibo data, using complex network analysis to study Weibo information dissemination patterns. Luo Jia et al. [19] proposed an LSTM-BLS text sentiment analysis model to analyze public sentiment tendencies during sudden meteorological disasters. Regarding research content, domestic scholars have focused primarily on information spread patterns and public opinion evolution and governance on weak-tie platforms like Weibo. For example, Zhao Fei et al. [20] conducted correlation analysis of disaster public opinion information influencing factors using Typhoon Lekima as a case study. Liu Liqun et al. [21] constructed a social computing model for natural disaster public opinion on Weibo. Wang Xiwei et al. [22] used social network analysis to propose that natural disaster network public opinion dissemination is influenced by media types. Wang Hongliang et al. [23] established a Weibo public opinion spread SIR model, arguing that Weibo public opinion spread exhibits “pathogen,” contagious, and immune characteristics.

Through literature review, while extensive research exists on factors influencing netizens’ information publishing behavior, studies based on the WeChat platform in the context of sudden natural disasters remain scarce, with relevant theories yet to be fully developed. Existing research suffers from insufficient case-specific analysis and incomplete data analysis. Moreover, most studies on sudden natural disaster events on social platforms focus on Weibo and adopt media or government perspectives, with few examining information publishers’ perspectives on WeChat. This study addresses this gap by investigating influencing factors of WeChat users’ information publishing behavior during the “7.20 Henan rainstorm” disaster event.

Research Model and Hypotheses

Theoretical Foundation and Model Construction

The Uses and Gratifications Theory examines mass communication’s psychological and behavioral effects from the audience’s perspective by analyzing their motivations for using media and the needs they seek to satisfy. This theory posits that audiences are driven by certain needs to select media and content. In 1973, E. Katz et al. identified five categories of individual media usage needs: cognitive, affective, personal integration, social integration, and stress relief [24].

E. Katz et al. argued that audience members actively utilize media content rather than passively accept media control, presuming they can simultaneously use information and that their usage affects media effects [24]. Therefore, in Uses and Gratifications Theory, audiences achieve satisfaction through “using” information provided by media. With media evolution, audiences’ media usage extends beyond provided information to include using the media platform itself, broadening the scope of “uses and gratifications” [25].

Overall, users' behaviors on WeChat encompass not only reading or viewing text and videos in Moments or groups but also posting viewpoints, sharing information, and participating in online discussions, all of which can be gratified through the platform. Users' "uses and gratifications" include both "using" WeChat's information and "using" the platform itself. When sudden natural disasters occur, users can serve as information recipients using WeChat to acquire information and satisfy cognitive needs, or as information publishers posting various forms of viewpoints and opinions. This process helps satisfy users' identity recognition, social relationship building, and self-image shaping needs, thereby fulfilling emotional, personal integration, social integration, and stress relief needs.

Based on this research, we categorized users' needs for publishing disaster-related information on WeChat into four dimensions: emotional needs, personal integration needs, social integration needs, and stress relief needs. Specific definitions are provided in Table 1. We constructed an initial model of influencing factors for WeChat users' sudden natural disaster information publishing behavior (see Figure 1 [Figure 1: see original paper]) to analyze these factors.

Given that WeChat Moments and groups are the platform's most widely used features and primary venues for information publishing [6], this study focuses on these two functions, comparing and analyzing the similarities and differences in influencing factors between them.

(1) Emotional Needs. Emotion, as a human physiological and psychological attribute, has gained unprecedented prominence in social media environments. Zhao Yunze and Liu Zhen defined emotional communication as "the expression, infection, and sharing of individuals' or groups' emotions and accompanying information"[26]. Netizens' emotional need satisfaction in social media information sharing derives from two sources: first, sharing information out of "altruism" to experience happiness and pleasure, thereby achieving emotional satisfaction; second, self-emotional expression. Liu Renjing et al. [27] found that based on expectations of helping others, information publishers are motivated by altruism and gain emotional satisfaction from altruistic behaviors, making them more inclined to share information. Feng Xiuzhen et al. [28] indicated that altruism has a significantly positive correlation with information sharing. Li Xinyue et al. [12] found that self-expression significantly positively influences elderly users' information publishing behavior. Based on this theoretical foundation and literature, we propose:

Hypothesis 1 (H1): Emotional needs positively influence users' sudden natural disaster information publishing behavior in WeChat Moments.

Hypothesis 2 (H2): Emotional needs positively influence users' sudden natural disaster information publishing behavior in WeChat groups.

(2) Personal Integration Needs. Image is a crucial resource for individuals to achieve and maintain status within groups. Social exchange theory suggests that individuals participate in exchange behaviors partly based on expectations

of potential social rewards, including others' recognition, respect, and improved image [29]. Enhancing image and reputation is an important motivation for posting useful information in online social networks. Members who frequently share information to help others can gain respect and better image reputation. Research shows that users seeking social identity and positive impressions are more likely to share information on social websites [27]. Users share information to help others and enhance their own image [30]. Based on this theoretical foundation and literature, we propose:

Hypothesis 3 (H3): Personal integration needs positively influence users' sudden natural disaster information publishing behavior in WeChat Moments.

Hypothesis 4 (H4): Personal integration needs positively influence users' sudden natural disaster information publishing behavior in WeChat groups.

(3) Social Integration Needs. Li Xinyue et al. [12] found that social integration needs do not positively promote but rather slightly inhibit elderly users' sharing behavior. Ding Guanqi [31], studying employees' social media usage and information sharing, noted that maintaining relationships is not their sharing motivation. Li Xuan [32] found that social integration needs are relatively weak compared to other needs among university students using Bilibili's learning community. Xiao Ming et al. [33] found that enhancing social interaction is not a strong purpose for university students using social Q&A communities like Zhihu. Based on this theoretical foundation and literature, we propose:

Hypothesis 5 (H5): Social integration needs have no positive influence on users' sudden natural disaster information publishing behavior in WeChat Moments.

Hypothesis 6 (H6): Social integration needs have no positive influence on users' sudden natural disaster information publishing behavior in WeChat groups.

(4) Stress Relief Needs. Users may publish information on social media to relieve stress, temporarily escaping life troubles or simply passing time, thereby achieving entertainment or stress relief. Research shows that satisfying entertainment or stress relief needs positively influences users' attitudes toward websites [34]. O. Turel et al. found that perceived ease and pleasure promote strong usage habits [35]. If users feel relaxed and happy from information publishing or release stress and tension caused by sudden natural disasters, they will increase their information publishing frequency. Based on this theoretical foundation and literature, we propose:

Hypothesis 7 (H7): Stress relief needs positively influence users' sudden natural disaster information publishing behavior in WeChat Moments.

Hypothesis 8 (H8): Stress relief needs positively influence users' sudden natural disaster information publishing behavior in WeChat groups.

Based on the theoretical foundation, initial model, and hypotheses, we developed questionnaires measuring users' "7.20 Henan rainstorm" disaster-related information publishing behaviors and influencing factors in both Moments and

groups. Measurement items were adapted from Xiao Ming et al.'s [33] survey on university students' motivations for using social Q&A communities, Feng Yuru et al.'s [10] measurement items for user bullet-comment publishing behavior, and Zeng Tiantian et al.'s [36] rainstorm disaster-related questionnaire.

The questionnaire comprised three parts: Part 1 collected basic personal information, including screening questions to identify valid samples of WeChat users who had published "7.20 Henan rainstorm" disaster-related information in Moments or groups, and classification questions to prepare for categorized responses in Parts 2 and 3. Part 2 measured influencing factors of disaster information publishing behavior. Part 3 measured disaster information publishing behavior itself. After drafting the questionnaire, we conducted a pre-test with 6 individuals (2 graduate students in the field, 1 graduate student outside the field, 1 undergraduate outside the field, and 2 working professionals) to refine and improve Parts 2 and 3, removing text with obvious bias. The final questionnaire contained 20 items: 14 for the influencing factor scale (corresponding to 4 needs) and 6 for the behavior scale. All items used a 5-point Likert scale (1-5 representing strongly disagree, disagree, neutral, agree, and strongly agree). The questionnaire automatically categorized respondents into two groups, with each group answering relevant questions. The influencing factor scale required only 11 items, and the behavior scale required only 3 items. Table 2 presents the measurement items for influencing factors of "7.20 Henan rainstorm" disaster-related information publishing behavior in WeChat Moments/groups.

Data Collection and Sample Description

We collected data through an online questionnaire, obtaining 215 responses. Thirty-one samples indicated they had not published "7.20 Henan rainstorm" disaster-related information in WeChat Moments or groups and were deemed invalid. The final sample comprised 184 valid questionnaires, yielding an 85.58% validity rate, which meets the requirement of 5-10 times the number of measurement items. Table 3 provides detailed demographic information for the valid sample.

Reliability and Validity Analysis

(1) Reliability Test. Reliability evaluates data credibility, consistency, and stability. In social sciences, Cronbach's α coefficient is the most widely used and recognized method for estimating reliability of Likert-type scales [37]. We used Cronbach's α to test internal consistency. The questionnaire covered 4 influencing factor dimensions. As shown in Table 4, all α coefficients exceeded 0.8, with the minimum being 0.809, indicating good reliability and trustworthy data.

(2) Validity Test. Validity measures whether a comprehensive evaluation system accurately reflects evaluation purposes and requirements [10]. We used confirmatory factor analysis to test convergent and discriminant validity [38]. Analysis yielded an overall KMO value of 0.946 for the Moments scale and 0.924 for the groups scale. Table 4 shows that except for personal integration needs and stress relief needs, all variable KMO values exceeded 0.6, with AVE values above 0.5 and CR values above 0.7, indicating good convergent validity. Bartlett's test of sphericity showed $P < 0.05$, with variable eigenvalues all greater than 1 and variance explanation rates above 69%, meaning variables could extract most item information and were suitable for factor analysis. Tables 5 and 6 show that the square root of AVE for each variable exceeded the absolute value of its correlation coefficients with other variables, indicating good discriminant validity.

Correlation Analysis

We used Pearson correlation coefficients to analyze relationships between users' disaster information publishing behavior in Moments/groups and the four influencing factors (emotional needs, personal integration needs, social integration needs, stress relief needs). Results are presented in Tables 7 and 8 .

For WeChat Moments, the correlation coefficient between disaster information publishing behavior and emotional needs was 0.118 ($p = 0.284 > 0.05$), indicating no linear relationship. Correlation coefficients with personal integration needs, social integration needs, and stress relief needs were 0.641, 0.539, and 0.592 respectively (all significant at $p < 0.01$), indicating significant positive linear relationships.

For WeChat groups, the correlation coefficient between disaster information publishing behavior and emotional needs was 0.053 ($p = 0.633 > 0.05$), indicating no linear relationship. Correlation coefficients with personal integration needs, social integration needs, and stress relief needs were 0.384, 0.422, and 0.485 respectively (all significant at $p < 0.01$), indicating significant positive linear relationships.

Multiple Regression Analysis

(1) WeChat Moments Disaster Information Publishing Behavior

We conducted multiple linear regression analysis with emotional needs, personal integration needs, social integration needs, and stress relief needs as independent variables and WeChat Moments disaster information publishing behavior as the dependent variable. Results appear in Table 9 . The model R^2 value was 0.560, indicating these four needs could explain users' Moments disaster information

publishing behavior to some extent. The model passed the F-test ($F = 25.133$, $p = 0.000 < 0.05$). All VIF values were below 5, indicating no multicollinearity, and the D-W value was near 2, indicating no autocorrelation.

The regression coefficient for emotional needs was -0.452 (significant at $p < 0.01$), indicating emotional needs significantly negatively influenced Moments disaster information publishing behavior, rejecting H1. Personal integration needs and stress relief needs showed coefficients of 0.619 and 0.601 respectively (both significant at $p < 0.01$), indicating significant positive influences, supporting H3 and H7. Social integration needs showed a coefficient of 0.155 ($p = 0.330 > 0.05$), indicating no significant influence, supporting H5.

After removing social integration needs, we conducted another regression analysis (Table 10). All remaining variables were significant at $p < 0.01$, yielding the regression equation:

WeChat Moments disaster information publishing behavior = 0.295 - 0.438 × emotional needs + 0.653 × personal integration needs + 0.699 × stress relief needs.

The revised influencing factor model for WeChat Moments is shown in Figure 2 [Figure 2: see original paper].

(2) WeChat Groups Disaster Information Publishing Behavior

We conducted multiple linear regression analysis with the four needs as independent variables and WeChat groups disaster information publishing behavior as the dependent variable. Results appear in Table 11. The model R^2 value was 0.333, indicating these needs could explain groups disaster information publishing behavior to some extent. The model passed the F-test ($F = 9.854$, $p = 0.000 < 0.05$). All VIF values were below 5, and the D-W value was near 2, indicating no multicollinearity or autocorrelation.

The regression coefficient for emotional needs was -0.312 (significant at $p < 0.05$), indicating emotional needs significantly negatively influenced groups disaster information publishing behavior, rejecting H2. Personal integration needs showed a coefficient of 0.298 ($p = 0.062 > 0.05$), indicating no significant influence, rejecting H4. Social integration needs and stress relief needs showed coefficients of 0.327 and 0.440 respectively (both significant at $p < 0.05$), indicating significant positive influences, rejecting H6 and supporting H8.

After removing personal integration needs, we conducted another regression analysis (Table 12). All remaining variables were significant at $p < 0.05$, yielding the regression equation:

WeChat groups disaster information publishing behavior = 0.014 - 0.228 × emotional needs + 0.388 × social integration needs + 0.540 × stress relief needs.

The revised influencing factor model for WeChat groups is shown in Figure 3 [Figure 3: see original paper].

Research Conclusions and Implications

The regression equations and revised models reveal that for WeChat Moments, key influencing factors are emotional needs, personal integration needs, and stress relief needs, while social integration needs exert no influence. For WeChat groups, key factors are emotional needs, social integration needs, and stress relief needs, while personal integration needs show no influence. We discuss these findings below:

(1) Social Integration Needs and Disaster Information Publishing Behavior. Social integration needs significantly positively influence disaster information publishing behavior in WeChat groups. Groups are often established around shared purposes or emotions. Beyond family-based groups, most group members are acquaintances at best. Publishing disaster-related information in groups quickly attracts attention from stakeholders, with group members in or connected to disaster areas responding rapidly, potentially establishing offline social relationships. During the “7.20 Henan rainstorm,” a “Henan Rainstorm Rescue Phone Numbers” infographic created by People’s Daily was forwarded to a group, immediately eliciting responses like “Perfect timing, buddy!” and “Already forwarded!” This allowed the publisher to rapidly connect with group members, establishing or maintaining social relationships. Some group members published disaster information to “keep consistent” with others, 拉近关系, and satisfy social integration needs.

(2) Personal Integration Needs and Disaster Information Publishing Behavior. Personal integration needs significantly positively influence disaster information publishing behavior in WeChat Moments. Moments content is visible only to approved friends, with information recipients being familiar or relatively familiar people where social relationships are already established. Therefore, social integration needs exert no significant influence on Moments disaster information publishing behavior. In contrast, the essence of groups is “group” while Moments is “circle.” Groups are more flexible than circles. When group size exceeds circle boundaries, users “break free” from circle constraints, and new social relationships form within groups. During natural disasters, people are generally in a state of tension and vigilance, highly sensitive to relevant information. Users can more easily establish social relationships and satisfy social integration needs by publishing information in groups. In Moments, users only need to establish or maintain their image within existing circles to gain respect or recognition. Thus, unlike groups, social integration needs do not significantly influence Moments disaster information publishing behavior, while personal integration needs have a significant positive effect.

(3) Emotional Needs and Disaster Information Publishing Behavior. Emotional needs significantly negatively influence disaster information publishing behavior in both Moments and groups. This finding differs from studies

by Xia Zhijie et al. [39] on factors influencing public social media usage during emergencies and Zhai Yue et al. [40] on public information dissemination motivations during sudden events. Based on data analysis and literature review, possible reasons include: Henan is a populous plain region. After the rainstorm, particularly following accidents like the “Zhengzhou Metro Line 5 incident,” WeChat users in or with relatives in disaster areas experienced fear and panic. Many residents were temporarily relocated for flood prevention, leaving netizens “too busy to care for others” and reducing altruistic publishing motivations. Concerns for relatives and friends were more directly addressed through phone calls and private messages. Therefore, emotional needs do not positively promote disaster information publishing behavior in either Moments or groups during this context.

(4) Stress Relief Needs and Disaster Information Publishing Behavior. Stress relief needs significantly positively influence disaster information publishing behavior in both Moments and groups. After the rainstorm, Henan activated Level I flood emergency responses, suspending public transportation and closing public venues, with most residents staying home. In an era of constant mobile phone usage and advanced network communications, netizens experiencing anxiety from the rainstorm actively searched for disaster-related information, browsing and publishing to Moments or groups to relieve tension. Thus, stress relief needs significantly promote disaster information publishing behavior in both contexts.

Since WeChat communication is built upon strong real-world interpersonal relationships, friends more easily accept and forward disaster-related information, enabling efficient, targeted dissemination from interpersonal to group communication. However, WeChat is a semi-closed, familiar-group interpersonal communication model [41] with weak information dissemination openness [42]. During sudden natural disasters, relevant information dissemination is difficult to monitor. If users publish false information to satisfy emotional, personal integration, social integration, or stress relief needs, it poses significant threats to stable public opinion environments. Given the extreme time-sensitivity of disaster information, relevant authorities should focus on these influencing factors, monitor disaster information publishing promptly, and improve user information interaction experiences. While actively publishing information to enhance social and personal integration need satisfaction, WeChat users should strengthen their information discrimination abilities, avoiding blind belief or forwarding of false information due to excessive tension or anxiety, which could create information crises and public panic, further increasing public opinion risks.

This study, based on Uses and Gratifications Theory, compared influencing factors of WeChat users’ disaster information publishing behaviors between Moments and groups, providing theoretical references for enhancing user information interaction experiences, improving critical disaster information dissemination efficiency, and guiding public opinion. Limitations include: (1) The analysis only employed Uses and Gratifications Theory, without considering other

factors like environmental or individual factors; (2) The study focused only on WeChat Moments and groups. Future research could analyze influencing factors for other WeChat functions and verify these conclusions with larger datasets.

References

- [1] Cai Meizhu. Research on characteristics of network public opinion in sudden natural disaster events [J]. *Journal of News Research*, 2012(10): 13-17.
- [2] Chung N, Han H, Koo C. Adoption of travel information in user-generated content on social media: the moderating effect of social presence [J]. *Behavior & Information Technology*, 2015, 34(9): 902-919.
- [3] Tencent Holdings Limited. 2020 Annual Report [EB/OL]. [2022-03-25]. <https://static.www.tencent.com/uploads/2021/04/08/27ed851251241c67fc697a18d7d8dc88.pdf>.
- [4] Cao Shujin, Chang Jingwei. Research on influencing factors of information credibility in social media during public health emergencies—Taking WeChat as an example [J]. *Modern Intelligence*, 2020, 40(9): 3-14.
- [5] Zhang Kun. A grounded study on the formation mechanism and conceptual model of WeChat Moments users' health information forwarding behavior [J]. *Library Journal*, 2020, 39(6): 97-106.
- [6] Zhao Haixia, Li Yiming. University students' WeChat Moments forwarding behavior and its implications for content providers [J]. *Library Science Research*, 2018(17): 41-47.
- [7] Berger J A, Milkman K L. What makes online content viral [J]. *Journal of Marketing Research*, 2009, 49(2): 192-205.
- [8] Zhang Yue. Research on influencing factors of university students' accidental information sharing behavior in network environments [D]. Mianyang: Southwest University of Science and Technology, 2018.
- [9] Feng Yuru, Deng Xiaozhao. Research on influencing factors of user bullet-comment behavior in bullet-comment video websites—A case study of Bilibili [J]. *Library and Information Service*, 2021, 65(17): 110-116.
- [10] Wang Yunzhi, Wang Xue, Cha Xianjin. Exploring driving factors of users' conforming information comment behavior on bullet-comment video websites [J]. *Journal of Information Resources Management*, 2020, 10(4): 60-69.
- [11] Li Xinyue, Zhu Qinghua, Zhao Ying. Research on elderly people' s WeChat information sharing behavior [J]. *Modern Intelligence*, 2021, 41(7): 74-84.
- [12] Huo Mingkui, Zhu Jiaqi. Mechanism and management strategies of social network users' positive energy information sharing behavior during public health emergencies [J]. *Information Science*, 2020, 38(11): 121-127.
- [13] Chen Juan, Gan Lingbo. Seeking relationships through information—Research on elderly people' s health information sharing behavior based on WeChat [J]. *Shanghai Journalism Review*, 2021(9): 10-19.
- [14] Xiong Li, Guo Huimei. Research on influencing factors of network information sharing behavior during emergencies based on motivation-cognition theory [J]. *Journal of Intelligence*, 2021, 40(5): 118-125.

- [15] Chester D, Duncan A, Kilburn C, et al. Human responses to the 1906 eruption of Vesuvius, southern Italy [J]. *Journal of Volcanology and Geothermal Research*, 2015(296): 1-18.
- [16] Jin Zhanyong, Tian Yapeng, Zhang Yang. Analysis of network public opinion characteristics in sudden disaster events—A case study of the 6·23 Yancheng tornado event [J]. *Journal of Jishou University (Social Sciences Edition)*, 2018, 39(S2): 72-78.
- [17] Ma Yingxue, Zhao Jichang. Public opinion characteristics and evolution on Weibo during natural disasters—A case study of typhoon and rainstorm data [J]. *Data Analysis and Knowledge Discovery*, 2021, 5(6): 66-79.
- [18] Luo Jia, Wang Lehao, Tu Shanshan, et al. Public sentiment tendency analysis in sudden meteorological disaster events based on LSTM-BLS [J]. *Journal of Nanjing University of Information Science & Technology (Natural Science Edition)*, 2021, 13(4): 477-483.
- [19] Zhao Fei, Liao Yongfeng. Research on network public opinion dissemination characteristics and influencing factors of sudden natural disaster events [J]. *Journal of Geo-Information Science*, 2021, 23(6): 1135-1145.
- [20] Liu Liqun, Liu Lihua. Emotion and topic modeling: A new exploration of social computing models for natural disaster public opinion [J]. *Modern Communication (Journal of Communication University of China)*, 2018, 40(7): 39-45.
- [21] Wang Xiwei, Wen Qing, Zhao Dan, et al. Research on natural disaster public opinion dissemination paths and network structure in new media environments—A case study of the “Ya’ an Earthquake” topic on Sina Weibo [J]. *Journal of Intelligence*, 2018, 37(2): 110-116.
- [22] Wang Hongliang, Zhou Haiwei. Research on spread patterns and control of Weibo public opinion in sudden natural disaster events [J]. *Journal of Intelligence*, 2013, 32(9): 23-28.
- [23] Katz E, Blumler J G, Gurevitch M. The uses of mass communications: Current perspectives on gratifications research [M]. Thousand Oaks: SAGE Publications, 1974.
- [24] Chen Jiayi. Research on content production in Bilibili’ s bullet-comment network area from the perspective of Uses and Gratifications Theory [J]. *Science and Technology Communication*, 2021, 13(16): 109-112, 152.
- [25] Zhao Yunze, Liu Zhen. Emotional communication: Concept, principles, and reflections on its status in journalism and communication research [J]. *Editorial Friend*, 2020(1): 51-56.
- [26] Liu Renjing, Cao Huifang, Liu Linlin. Research on the influence of individual psychological factors on information sharing behavior in social commerce—The moderating role of Big Five personality [J]. *Soft Science*, 2017, 31(12): 101-107.
- [27] Feng Xiuzhen, Yue Wenlei. Empirical research on information sharing behavior in virtual teams [J]. *Science and Technology Management Research*, 2009, 29(10): 249-251.
- [28] Constant D, Sproull L, Kiesler S. The kindness of strangers: The usefulness of electronic weak ties for technical advice [J]. *Organization Science*, 1996, 7(2):

119-135.

- [29] Roselyn J, Lee W, Minsun, et al. Who puts the best “face” forward on Facebook? Positive self-presentation in online social networking and the role of self-consciousness, actual-to-total friends ratio, and culture [J]. *Computers in Human Behavior*, 2014, 39(10): 413-423.
- [30] Ding Guanqi. Enterprise social media, knowledge sharing, and employee creativity [D]. Hefei: University of Science and Technology of China, 2019.
- [31] Li Xuan. Research on university students’ usage willingness and effects of Bilibili’ s learning area under Uses and Gratifications Theory [J]. *Science and Technology Communication*, 2020, 12(22): 140-142, 149.
- [32] Xiao Ming, Hou Yanqin. University students’ motivations, behaviors, and gratifications in using social Q&A communities—An empirical study using Zhihu as an example [J]. *Modern Communication (Journal of Communication University of China)*, 2019, 41(2): 59-62.
- [33] Chen Q M, Wells W D. Attitude toward the site [J]. *Journal of Advertising Research*, 1999, 39(5): 27-37.
- [34] Turel O, Serenko A. The benefit and dangers of enjoyment with social networking websites [J]. *European Journal of Information Systems*, 2012, 21(5): 512-528.
- [35] Zeng Tiantian, Wang Xiaofeng, Li Yao. Assessment of tourists’ risk perception of rainstorm disasters based on order relation analysis method—A case study of Taiping National Forest Park in Qinling Mountains [J]. *Henan Science*, 2017, 35(5): 829-836.
- [36] Wu Minglong. Questionnaire statistical analysis practice [M]. Chongqing: Chongqing University Press, 2010.
- [37] Xia Jiabei, Deng Chaohua, Wu Tailai. Research on influencing factors of professional women’ s online health information seeking behavior and moderating effect of social support [J]. *Library and Information Service*, 2020, 64(23): 53-62.
- [38] Xia Zhijie, Wang Xiaoli, Wang Bingbing. Research on influencing factors of public social media usage intention in disaster events [J]. *Journal of the China Society for Scientific and Technical Information*, 2015, 34(3): 291-301.
- [39] Zhai Yue, Xia Zhijie, Wang Xiaoli, et al. Research on public willingness to participate in coping with social media misinformation during emergencies [J]. *Journal of Intelligence*, 2016, 35(9): 104-110.
- [40] Zhang Lei. Network platform participation in disaster public opinion dissemination—A case study of the “6·10” Shuangbai earthquake [J]. *China Emergency Management*, 2021(9): 48-53.
- [41] Li Chunlei, Ma Siyong. Research on the influence of social media on youth groups’ pan-entertainment dissemination of disaster information—A field investigation based on Typhoon “Mangkhut” [J]. *Modern Communication (Journal of Communication University of China)*, 2021, 43(5): 133-140.

Author Contributions:

Fang Jie: Proposed research ideas, provided guidance and revision.

Cui Lanlan: Conducted data collection, research design, data analysis, and

paper writing and revision.

Note: Figure translations are in progress. See original paper for figures.

Source: ChinaXiv – Machine translation. Verify with original.