



Building community resilience on social media to help recover from the COVID-19 pandemic

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ABSTRACT

Facing the Covid outbreaks, public health researchers share a consensus that community resilience should be maintained and strengthened because it helps mitigate the physical and emotional tolls on individuals and communities. One way to achieve the goal is to build and strengthen community resilience through social media. However, social media's role in building community resilience has been poorly understood from a behavioral perspective. Guiding by uses and gratification theory and the coping literature, we build a model to examine how social media behaviors may influence community members' perceived community resilience, providing a "bottom-up" voice to deepen our understanding of community resilience and its implications for public health. The results shows that community members' social media engagement was significantly associated with their perceived community resilience. While helping others on social media led people to perceive their communities as less resilient, the use of social media for social support helped foster social capital, leading to more perceived resilience at the collective level. Overall, social media use played important roles in shaping people's perception of community resilience, helping community members and organizations evaluate their strengths and weaknesses, and make improvement to better address future challenges in the times of global disasters.

CRedit authorship statement

Lola Xie, Conceptualization, project administration, methodology, data collection, formal analysis, writing-original draft, writing -review & editor; **Juliet Pinto**, Supervision, conceptualization, validation, investigation, writing - original draft, writing - review & editing; **Bu Zhong**, Supervision, validation, investigation, writing - review & editing, and resources.

1. Introduction

Resilience has gained increasing attention these years as a fundamental construct to disaster preparedness, emergency response, and crisis recovery. Facing the Covid pandemic, there is a consensus among public health researchers that community resilience should be maintained and strengthened (Zhang, 2022) as it helps mitigate both physical and emotional tolls on individuals and communities (Zhong, Jiang, et al., 2020). Community resilience incorporates individual-level

response and preparedness with a networked social support system in communities to withstand and recover from public health emergencies (Norris et al., 2008). How individuals perceive their communities as being resilient or bouncing back from the devastation wrought by a pandemic can be an important component of the recovery process in terms of allocating resources, imparting information, or providing assistance for others. The construction of a resilient community relies heavily on networked social support and resources. Increasingly, social media have become a central part of emergency responses and resilience construction with timely information exchange and promotion of connectedness for social support as core strengths (Houston, Hawthorne, et al., 2015; Taylor et al., 2012). Studies on social media use after natural disasters or health crises have outlined the roles social media play in the timely communication of critical information (Cho et al., 2013; Jin et al., 2014), social support (Tandoc & Takahashi, 2017), and psychological well-being (Taylor et al., 2012). However, social media's role in resilience construction has been poorly understood from a behavioral perspective. To advance our knowledge on resilience construction in the

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social media era under the context of a global health crisis like Covid, we examine the relations between social media use and perceived community resilience. Specifically, we develop an integrated model to examine how social media behaviors may influence community members' perceptions of community resilience through the uses and gratification theory (Whiting & Williams, 2013) and the theory of stress and coping (Lazarus & Folkman, 1991). The findings should deepen our understanding of the interactions between social media use and perceived community resilience.

2. Literature review

2.1. Community resilience

Originally developed in biophysics, the concept of resilience has been broadly defined as an object's ability to withstand and rebound from a disturbance (Holling, 1973). The concept was then applied and explored in social sciences as a metaphor of human's capacity to withstand and recover from disturbing events (Bonanno & Diminich, 2013). At a collective level, community resilience refers to the "collective activity in which individuals join together" (Pfefferbaum & Klomp, 2013, p. 279) to respond to a shared crisis. It can be understood both as an outcome, where a community bounces back from an adversity and returns to normality (Adger, 2000), and as a process, where individuals in a community collectively respond to the adversity by harnessing a variety of adaptive capacities (Norris et al., 2008).

While past research approached community resilience primarily at a systematic level, focusing on the adaptive capacities of a community and how networked social, economic, and physical resources can help build up these capacities (Pfefferbaum, Pfefferbaum, & Van Horn, 2015; Walker et al., 2006), the construction of a resilient community requires both institutional and individual efforts. Community resilience incorporate individual-level response and preparedness with a networked social support system in communities to withstand and recover from a shared crisis (Norris et al., 2008). Resilience can manifest as an important component of individuals' decision-making processes regarding resources and information, the provision of assistance, concern for others' well-being, and the degree to which individuals impart information as means to assist others in a shared crisis.

Community resilience constitutes both physical and perceptual components (Cohen et al., 2013). Thus, the assessment of community resilience relies on either measuring indicators of local economic and social capitals (Sherrieb et al., 2010), or by examining community members' perceptions. Perceived community resilience reflects the public belief in the community's ability to withstand and recover from disasters (Zhang & Shay, 2019). Understanding how community members perceive their collective capacity to address a shared crisis is essential to the construction of community resilience (Spialek & Houston, 2019). As community members evaluate their community's weaknesses and strengths in response to a shared crisis, they can identify existing problems, take further actions to strengthen their adaptive capacities, and thus build a more resilient community (Pfefferbaum & Klomp, 2013, pp. 275–298). Perceived community resilience can be evaluated through five main elements: social capital and psychological cohesiveness, belief in the leadership, collective efficacy of the community, place attachment, and social trust among the community (Cohen et al., 2013; Leykin et al., 2013). By taking individual members' perceptions of the shared experience, leadership functioning, trust, and physical readiness into consideration, the assessment of perceived community resilience provides a "bottom-up" voice, reflecting not only whether community capacities are perceived as sufficient but also the extent to which individual experiences and attitudes help build resilience at a collective level (Houston et al., 2017; B; Pfefferbaum, Pfefferbaum, & Van Horn, 2015).

2.2. Antecedents of perceived community resilience

2.2.1. Collective efficacy

Collective efficacy, defined as people's belief in the capacity to achieve their communal goal through their collective efforts (Bandura, 2000), has been theorized as an important component of the construction of perceived community resilience (Cohen et al., 2013). As a group level concept, collective efficacy describes the common belief in a group in their interactive, cooperative, and interdependent efforts to jointly achieve a common good goal (C. B. Watson et al., 2001). Research has discovered that collective efficacy is a key predictor of the capacity of a community to manage crisis and implement collective goals (Cagney et al., 2016; Sampson et al., 1997). Plough et al. (2013) identified collective efficacy as a strong predictor of community resilience perception. Thus, we hypothesize:

H1. Collective efficacy is positively associated with perceived community resilience.

2.2.2. Community identity

Community identity is an individual's perception of belonging and relationship with their community (Sproull & Faraj, 1997). Social identity theory suggests that individuals project their emotional attachments and values onto the group they belong to (Hogg, 2016). Strong identification with their communities may amplify individuals' connections with others in the community through shared experiences, emotions, and values (Mael & Ashforth, 1992).

Research has found that people who live in communities with higher cohesion and social exchange can better utilize their networked social capitals to withstand and recover from a hurricane (Cagney et al., 2016); community identification was also identified as a strong predictor of post-disaster communication and resilience perception after Hurricane Matthew (Zhang & Shay, 2019). Thus, we hypothesize that:

H2. Community identification is positively associated with perceived community resilience.

2.3. Social media and perceived community resilience

The construction of perceived community resilience relies heavily on communication as the latter facilitates community meaning-making, information exchange, social interaction, and human connection (Houston, Hawthorne, et al., 2015). Research on neighborhood storytelling along with the dynamic interaction between local residents and local media also found that stronger community storytelling networks can create a stronger sense of belonging, efficacy, and participation, outcomes that are highly associated with perceived community resilience (Ball-Rokeach, 1985; Houston, Hawthorne, et al., 2015). Studies examining media use after tornados-impacted communities found that the use of traditional media to seek information about the disaster and participation in community-based interpersonal communication with family, friends, and neighbors were positive predictors of community resilience perception among local residents (Houston et al., 2017); and that those with the constant access to the social media content were likely to perceive their community as more resilient (Spialek et al., 2016). Active social media engagement after natural disasters, such as interacting with online disaster information and providing social support to community members on social media, is also found to be positively correlated with perception of community resilience (Zhang & Shay, 2019).

While social media use is often analyzed as a component of crisis management in community resilience literature (Dufty, 2012), it is less theorized and examined by communication scholars in terms of its influences on perceived community resilience (Houston, Hawthorne, et al., 2015). Moreover, less research has examined the role of individual community members' social media using behaviors in the dynamic process of collective adaptation of a shared crisis and how such

behaviors influence the construction of perceived community resilience. Thus, in the current study, we first attempt to theorize social media engagement in the context of Covid, an unprecedented public health crisis affecting millions of communities globally, by utilizing the uses and gratification theory (Katz et al., 1973) and coping literature (Lazarus & Folkman, 1991), and then examine its correlation with perceived community resilience.

2.4. Conceptualizing social media engagement

The uses and gratifications approach (UGT) suggests that people are goal-oriented media users, who actively seek gratifications through media consumption (Katz et al., 1973). The informational, emotional, and social needs fulfilled through social media use demonstrate networked social capital provided by social media engagement (Phua et al., 2017). Increasingly, social media have become sources of coping for individuals dealing with stress and crisis with their potential to provide cognitive and affective gratifications (LaRose & Eastin, 2004; Lin, 2014). Lazarus and Folkman (1984, p. 156) defined coping as cognitive and behavioral efforts to manage undesirable emotions or specific demands from an overwhelming environment. Coping can be conceptualized as both problem-solving strategies and emotion-regulating strategies, and any tools, skills, or social networks can become coping resources (Lazarus & Folkman, 1984). Communities in New Orleans reported online blogging as a way to alleviate stress after Hurricane Katrina (Watson, 2018). Facebook was also found to be an important platform for local residents to share experiences and connect during a series of natural disasters in Australia and New Zealand (Taylor et al., 2012). Such “collective coping” (Tandoc & Takahashi, 2017) highlights the need to examine social media engagement as a coping strategy in the construction of community resilience.

Thus, based on the uses and gratification theory and coping literature, we segment social media engagement during a shared crisis affecting the whole community into four categories: Community Information Support, Social Support Seeking, Information Seeking, and Information Avoidance.

Community information support. Community information support describes social media use through which individuals take actions to help others in the community by posting and sharing useful information during crises. Taking actions to respond to a stressor is an important component of coping (Duhachek, 2005), as it helps with mood management and empowers individuals with a sense of control facing outside disturbances (Lazarus & Folkman, 1984). A study found that actively taking actions to help others can effectively alleviate stress and promote positivity in the aftermath of Typhoon Haiyan (Tandoc & Takahashi, 2017). Such interaction facilitates social support, information exchange, and trust among community members (Zhang & Shay, 2019), which are critical components of community resilience (R. L. Pfefferbaum, Pfefferbaum, & Van Horn, 2015).

Social support seeking. Social support seeking involves using social media to fulfill emotional and social needs during a shared crisis. As an important component of social capital in the construction of community resilience, social media use for social support is proposed to be positively associated to perceived resilience at a collective level (Aldrich & Meyer, 2015; Houston & Franken, 2015). Social support is also among the most common coping strategies (Duhachek, 2005; Lazarus & Folkman, 1984), and social media provide great platforms for individuals to seek social support from one another during crises (Taylor et al., 2012).

Information seeking. Information seeking describes social media use for acquiring and gathering critical information about the shared crisis. Information seeking is a powerful tool for coping with everyday problems (Lu, 2010) and a strong predictor of health outcomes and behavior change (Case et al., 2005; Lambert & Loisel, 2007). In a study examining emotional responses to the H1N1 Influenza Pandemic, Kim and Niederdeppe (2013) found that information seeking during a crisis can help reduce uncertainty and support organizational effort to contain the

crisis.

Information avoidance. Information avoidance describes social media use through which individuals escape from the existing crisis affecting their communities. Avoiding information on and interaction with a stressor is also a tool of coping (Duhachek, 2005), and research in health communication suggests that individuals often avoid threatening health information to reduce psychological discomfort and dissonance (Case et al., 2005; Davey et al., 1993), or when they perceive the current situation as hopeless or unchangeable (Lazarus & Folkman, 1984). Uses and gratification theory also highlights the consumption of media content to escape from reality (Katz & Foulkes, 1962; Kwon et al., 2013).

During Covid, all four dimensions of social media engagement are helpful tools for individuals to connect with others in their community and to cope with the stresses posed by the pandemic in the situation of social distancing and isolation. Table 1 provides a brief operationalization of all four types of social media engagement in the context of Covid.

By actively using social media as a coping strategy, community members can cope with the pandemic collectively. This may further boost their beliefs of their community’s ability to maintain its function and structure during the pandemic and “bounce forward” (Houston, 2015) after the pandemic. Thus, we ask the first research question about the relationships between social media engagement and perception of community resilience:

RQ1. How is perceived community resilience related to information seeking (a), social support seeking (b), community information support (c), and (d) information avoidance?

Past research has indicated that coping strategies that prioritize problem-solving, such as taking actions to help others in the community, help individuals re-evaluate the crisis situation based on steps they’ve taken to solve the problem (Dolan et al., 2016; Duhachek, 2005). The re-evaluation can further influence other coping behaviors (Zhang & Shay, 2019). The result of taking actions to help on social media can further lead individuals to seek more information, seek more social support from others in the community or avoid pandemic-related information altogether. So, we ask the following question:

RQ2. Is community information support related to information seeking (a), social support seeking (b), or information avoidance (c)?

2.5. Emotional response

The pandemic, along with many disruptive protective measures required, will impose considerable demands on people, families, and communities, and can generate emotional reactions. Lazarus (1991) defined emotion as an arousal status reacting to one’s perception and appraisal of the “person-environment” (p.38) relationship and identified emotion-regulation as an important part of coping. Different emotions experienced can lead individuals to take various actions in response to the crisis (Kim & Niederdeppe, 2013). A dimensional approach to emotion suggests that emotion can be conceptualized as two evaluative valence dimensions of positive emotion and negative emotions (Lang et al., 2005).

Table 1
Four types of social media engagement during Covid.

| Social Media Engagement | Operationalization |
|-------------------------------|--|
| Community Information Support | Taking actions to help others in the community by sharing and posting helpful Covid-related information on social media. |
| Social Support Seeking | Seeking emotional and social support from others in the community to deal with stresses posed by Covid on social media. |
| Information Seeking | Seeking and acquiring critical health information about Covid. |
| Information Avoidance | Avoiding Covid-related information on social media. |

Negative emotions are found to be positively associated with active information seeking and processing (Zhong, 2011), but they are also negatively associated with trust in an organization during a crisis (Kim & Niederdeppe, 2013). Positive emotions, however, are less understood in the context of crisis. A few existing studies found that positive emotions can occur with negative emotions during a crisis, and these positive emotions can play a prominent role in alleviating the negative impact of a crisis (Folkman & Moskowitz, 2000). Though research in the past has identified emotion response to crises in many contexts, such as flooding, hurricane, and influenza, and in relation to many constructs, such as trust, information processing, and perceived responsibility (Griffin et al., 2004; Jin, 2009), less investigation has featured the relationship between emotions and perceived community resilience. Thus, we ask the following research question:

RQ3. How are one's emotions experienced during the pandemic related to her or his perception of community resilience?

All together, we constructed a theoretical model concerning the relationship between social media engagement and perceived community resilience, along with community identification and collective efficacy presented in Fig. 1.

3. Method

The data for this study were collected using an online survey distributed through Amazon Cloud via Mechanical Turk toolkit (Litman et al., 2017). U.S.-based participants over 18 years old were recruited for taking the survey in October 2020, when Covid cases in the U.S. spiked. After excluding cases that failed the attention check, we ended up with a sample of 676 participants that closely represented the U.S. population.

3.1. Measurement

All independent variables and the dependent variable were measured on a 5-point Likert scale unless it is otherwise specified. The scales used in this study were directly used or adopted from previous studies and none was self-created. A list of all measurement items is presented in the Appendix.

3.1.1. Dependent variable

The scale for measuring community resilience ($M = 3.24$, $SD = 0.96$, $\alpha = 0.95$) was adopted from the existing literature, where we combined the 10-item CCRAM-10 scale of perceived community resilience (Leykin et al., 2013) and the one-item measurement of perceived community resilience asking participants how well prepared they believe their community is to handle a major crisis from Cagney et al. (2016). A list of all 11 items used to measure perceived community resilience is presented in the Appendix.

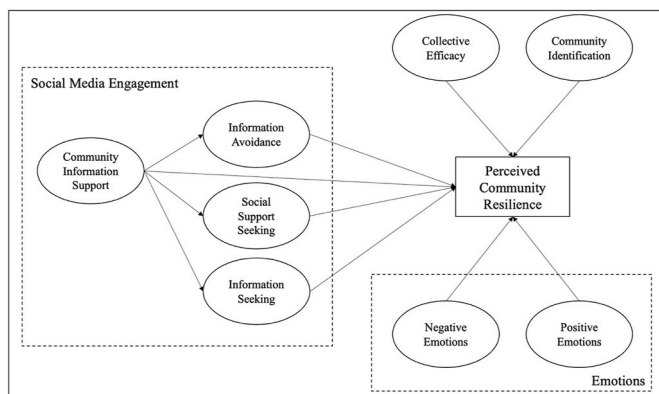


Fig. 1. The theoretical model of perceived community resilience construction.

3.1.2. Independent variables

Social media engagement – Information seeking ($M = 2.45$, $SD = 0.99$, $\alpha = 0.86$). All the four social media engagement scales were adopted from Duhachek's (2005) model of consumer coping. Participants were asked to rate their frequency of social media activities described in 6 statements, including "I follow local news outlets on social media to learn about Covid;" and "I learn information about the pandemic from my friends and family on social media."

Social media engagement – Community Information Support ($M = 2.15$, $SD = 0.98$, $\alpha = 0.96$) was measured by 11 items, including "I share useful information related to the pandemic on social media;" and "I give advice on social media to my friends and community members on what they can do to protect themselves."

Social Media Engagement – Social Support Seeking ($M = 2.03$, $SD = 0.95$, $\alpha = 0.93$) was measured by their frequencies carrying out 6 social media behaviors, including "seek out my friends on social media for comfort", and "rely on others on social media to make me feel better."

Social media engagement – Information avoidance ($M = 2.31$, $SD = 0.80$, $\alpha = 0.82$) was measured by asking participants to rate their frequencies of carrying out 6 social media behaviors, including "Try to take my mind off of the crisis by engaging with other topics on social media," and "Avoid information related to the pandemic on social media."

Collective efficacy ($M = 3.66$, $SD = 0.92$, $\alpha = 0.86$) was measured by asking participants to rate on 4 items, including, "I am confident that my community can respond in the best way to protect its members during the pandemic;" and "I believe together we can solve the problems posed by the pandemic."

Community identification ($M = 3.16$, $SD = 1.03$, $\alpha = 0.90$) was measured by the organizational identification scale (Mael & Ashforth, 1992). The participants were asked to rate 6 items, including "When someone criticizes my community, it feels like a personal insult;" and "I am very interested in what others think about my community."

Emotion response was measured by asking the participants to rate their frequency of experiencing 10 positive emotions, including interested, attentive, excited, enthusiastic, inspired, proud, determined, alert, strong and active ($M = 1.91$, $SD = 0.86$, $\alpha = 0.94$), and 10 negative emotions, including distressed, upset, guilty, ashamed, hostile, irritable, nervous, jittery, scared and afraid ($M = 2.76$, $SD = 0.99$, $\alpha = 0.93$), which are adopted from the Positive and Negative Affect Schedule (Thompson, 2007).

3.2. Data analysis

This study used the structural equation modeling (SEM) technique to answer research questions. The SEM is a combination of factor analysis and multiple regression (Ullman & Bentler, 2003). We took two steps in our data analysis: 1) construct a measurement model that performed confirmatory factor analysis, identifying the relationships between the latent variable and its corresponding observed variable; and 2) perform path analysis on the structural model we theorized based on the literature. Both the structural and measurement models were estimated with AMOS 27 using the method of maximum likelihood. The sample variance-covariance matrix was used to test the measurement model and the structural model after accounting for the effect of demographics, including age, gender, educational level, and family income. Finally, we ran stepwise multiple regression analyses to further verify the results from the SEM.

4. Results

4.1. Participants

Among the 676 participants, 55.5% were female ($n = 373$), 44.1% were male ($n = 298$), 0.7% didn't specify their gender. 41.6% of the participants ($n = 281$) reported having a four-year college degree and 18.9% reported having a graduate degree. The mean age of all

participants was 41.10 years ($SD = 13.01$). Reported racial demographics were predominantly White/Caucasian ($n = 490$, 72.5%), followed by Black/African American ($n = 75$, 11.1%), Asian ($n = 58$, 8.6%), Hispanic/Latino(a) ($n = 30$, 4.4%), and 2.2% identified with more than two ethnicities.

4.2. The SEM model

We first conducted a confirmatory factor analysis on our measurement scales, including social media engagement, perceived community resilience, community identification, collective efficacy, positive emotions, and negative emotions. The initial model fit was unsatisfactory: $X^2(2241, 676) = 9398.96$, $p = .000$; Comparative Fit Index (CFI) is 0.82; Root Mean Square Error Approximation (RMSEA) is 0.069 (90% confidence interval: 0.067 to 0.070). All factor loadings were above 0.5. The modification indices suggested that measurement errors of several items, measuring latent variables positive emotions, negative emotions, community actions, social support and PCR, have high covariances.

Next, we inspected the specific items measuring these latent variables and found that items with correlated errors were those with similar wordings. To improve the model fit, we modified the model by drawing a correlation between measurement errors of items measuring a same latent variable based on suggestions from the modification indices. We ran the modified measurement model again with the above-mentioned errors correlated, and the new model suggested a better fit: $X^2(2141, 676) = 4187.36$, $p = .000$; Comparative Fit Index (CFI) is 0.95; Root Mean Square Error Approximation (RMSEA) is 0.038 (90% confidence interval: 0.036 to 0.039), and Standardized Root Mean Square Residual (SRMR) is 0.057. Model fit suggested whether data collected fit the proposed model. Larger sample size and more parameters tend to produce a significant Chi-Square test, so other indices are employed to assess the model fit. Based on the cutoff criteria recommended by Hu and Bentler (1999) and Kline (2015), a good fit shall have the following indices: RMSEA < 0.10, CFI > 0.90, SRMR < 0.10. The current proposed measurement model fits well the above benchmarks.

We then evaluated our structural model using AMOS 27. The proposed structural model is shown as Fig. 1 and our assessment of the model indicated a good fit: $X^2(2154, 676) = 4442.49$, $p = .000$; Comparative Fit Index (CFI) is 0.94; Root Mean Square Error Approximation (RMSEA) is 0.040 (90% confidence interval: 0.038 to 0.041), and Standardized Root Mean Square Residual (SRMR) is 0.087. The results of the SEM model are reported in Fig. 2.

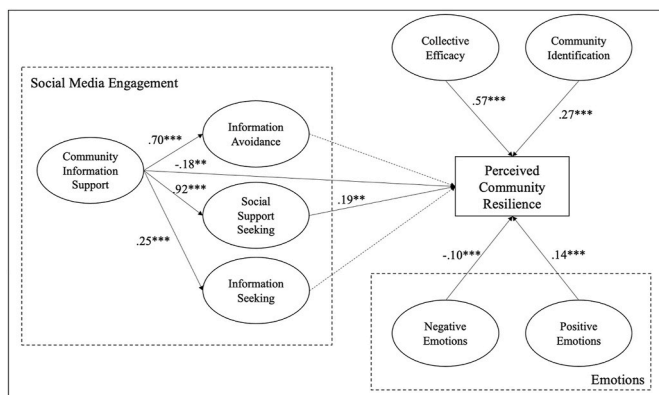


Fig. 2. The final SEM model constructing perceived community resilience. Note. $X^2(2154, 676) = 4442.49$, $p = .000$. Comparative Fit Index (CFI) is 0.94; Root Mean Square Error Approximation (RMSEA) is 0.040 (90% confidence interval: 0.038 to 0.041), and Standardized Root Mean Square Residual (SRMR) is 0.087.

4.3. Social media engagement and perceived community resilience

We then looked into the regression estimates of the SEM results to answer our research questions (see Table 2). Our first hypothesis investigated the relationship between collective efficacy and perceived community resilience. The SEM results indicated that collective efficacy was significantly positively associated with perceived community resilience ($\beta = .57$, $p < .001$), thus confirming H1.

H2 explored the relationship between community identification and perceived community resilience. The analysis shows that community identification was significantly positively associated with perceived community resilience ($\beta = .27$, $p < .001$), which confirms H2.

Our first research question asks whether social media engagement during the Covid outbreaks can either enhance or impede individuals' perceptions of community resilience. Specifically, how community-oriented information support, information-seeking, social support seeking, and avoidance are associated with community resilience? Our structural model indicated that social support seeking was positively associated individuals' perception of community resilience ($\beta = 0.19$, $p < .01$), but community information support has a negative relationship with community resilience perception ($\beta = -0.18$, $p < .05$). Moreover, both information-seeking ($\beta = 0.02$, $p = .668$) and avoidance ($\beta = 0.000$, $p = .954$) were not significantly related with community resilience. Such results suggested that actively helping others by posting and sharing information on social media was negatively associated with people's perception of community resilience during the pandemic, while seeking and receiving emotional and social support from others on social media was positively associated with one's community resilience perception.

RQ2 asked about the relationship between each social media coping behavior. The results from structural equation modeling suggested that community information support was positively associated with social support seeking ($\beta = .92$, $p < .001$), information-seeking ($\beta = 0.70$, $p < .001$), and information avoidance ($\beta = 0.25$, $p < .001$). The results confirmed the assumption that actively taking actions to help others on social media could lead one to re-evaluate the crisis posed by the pandemic, and further choose to cope with the crisis by seeking social support and more information or avoiding pandemic-related information altogether.

RQ3 asked about the relationship between emotional responses and perceived community resilience. The SEM results indicated that positive emotions were positively associated with community resilience ($\beta = .14$, $p < .001$), while negative emotions were negatively associated with community resilience ($\beta = -0.10$, $p < .001$).

We later ran a stepwise multiple regression to confirm our SEM re-

Table 2

Structural equation modeling results.

| Hypotheses | Path | Standardized Estimate | SE | C.R. |
|------------|---|-----------------------|------|--------|
| H1 | Collective Efficacy to PCR | .57*** | .042 | 12.72 |
| H2 | Community ID to PCR | .27*** | .039 | 6.70 |
| RQ1 | Community Information Support to PCR | -.18* | .082 | -2.09 |
| | Social Support Seeking to PCR | .19** | .074 | 2.62 |
| RQ2 | Community Information Support to Social Support Seeking | .92*** | .035 | 25.11 |
| | Community Information Support to Information Seeking | .70*** | .041 | 13.07 |
| | Community Information Support to Information Avoidance | .25*** | .043 | 8.77 |
| RQ3 | Negative Emotions to PCR | -.10*** | .033 | -3.453 |
| | Positive Emotions to PCR | .14*** | .043 | 4.21 |

Note. PCR = perceived community resilience. Community ID = community identification. * $p < .05$, ** $p < .01$, *** $p < .001$.

sults and to identify key predictors of perceived community resilience. As Table 3 shows, we found that collective efficacy ($\beta = 0.45, p < .001$), community identification ($\beta = 0.24, p < .001$), positive emotions ($\beta = 0.18, p < .001$), and social support seeking ($\beta = 0.12, p < .01$) on social media are significant positive predictors of perceived community resilience, while negative emotions negatively predicted perceived community resilience ($\beta = -0.18, p < .001$). These variables explained a significant proportion of the variance in perceived community resilience, $R^2 = 0.67, F(5, 676) = 273.04, p < .001$.

5. Discussion

Community resilience in the times of global disasters offers promise in empowering people and their communities so that they could face challenges and work out radical strategies to alleviate disastrous consequences (Robertson et al., 2021). Our study approached the construction of community resilience from a communication perspective by examining the role social media played in collective-coping and resilience construction during the current traumatic pandemic. By conceptualizing social media engagement as a coping strategy under the frameworks of uses and gratification and the stress and coping theory, we examined how individuals in the U.S. have used social media to tackle the challenges posed by the global pandemic of Covid, and identified social media use for social support seeking, collective efficacy, community identification, both positive and negative emotion responses as prominent predictors of perceived community resilience.

5.1. Social media engagement

Social media engagement during the pandemic captured the dynamic interactions between individual social media users and their community members. Our results indicated that taking actions on social media to provide information support and help others in the community positively predicted other coping behaviors, such as information seeking, social support seeking, and information avoidance. The finding highlighted how coping can be understood as a problem-solving strategy (Lazarus & Folkman, 1984), where individuals proactively take actions to deal with the stressor and as they move forward, they adjust their coping behaviors as a result of the re-appraisal of the current situation. During the pandemic, when people proactively help others in their community by providing useful information and personal experiences, they actively engaged themselves in an attempt to solve the problem (Zhong, Huang, & Liu, 2020). As an ongoing process, they constantly re-evaluate the challenge, and then decide to either seek more information to help, seek emotional and social support from others, or avoid the topic at all if they deemed the pandemic as unsolvable. As we move forward with the pandemic, many people became less interested in participating in activities related to Covid on social media and tended to involve themselves with other things online to avoid distressing pandemic information.

5.2. Perceived community resilience and social media

When we link people's social media behaviors to their perception of community resilience, we found that social support seeking was

positively associated with perceived community resilience, while community-oriented information support was negatively associated with perceived community resilience. Both information seeking and information avoidance were positively associated with perceived community resilience but did not reach statistical significance. The positive association between social support seeking and perceived community resilience align with previous literature (Zhang & Shay, 2019), indicating the salutary effect of social media on connecting community members, and fostering a sense of social support during the pandemic, which could further lead to better perception of community resilience.

The negative association between community information support and perceived community resilience was unexpected and contradictory to our assumption that taking actions to help others in the community will make one perceive the community as more resilient. One possible explanation is that when people take actions on social media to help others during an ongoing pandemic, they are more likely to expose themselves to a variety of negative news, tragical personal stories, and misinformation related to Covid. Such exposure can not only induce stresses and negative emotions, which were negatively associated with perceived community resilience, but also lead them to appraise their communities as incompetent when dealing with the pandemic.

Spialek and Houston (2019) pointed out that in order to build resilience, both community members and organizations need to assess the strengths and weaknesses to sustain adaptive capacities, identify existing problems, and making improvement plans (Pfefferbaum & Klomp, 2013, pp. 275–298). In our study, taking actions to help others online provided an opportunity for community members to see the weakness of their communities and the problematic approach their communities were taking to handle the pandemic. Thus, they would not only perceive their communities as less resilient, but also turn to other social media behaviors, such as information seeking, social support seeking and information avoidance, to further cope with the stresses coming from helping others and seeing how incompetent their communities were. Future research can specifically examine the influence of negative community news/information exposure on people's perception of community resilience. Moreover, future research can also look into whether negative assessment of community resilience can further motivate individual members to participate more in collective actions, support crisis management policies and more.

Though information seeking and avoidance didn't have a significant association with community resilience, they are critical parts of social media engagement that could potentially help individuals cope with the challenge posed by the pandemic. More research examining social media use as a coping strategy, especially at the collective level, is needed to fully understand how specific social media behaviors can either foster or impede the construction of community resilience in an era of social distancing and isolation. Future research can look into the intersection of social media as a coping strategy and social media fatigue to fully evaluate social media's role in constructing resilience and facilitating recovery during and after the pandemic.

5.3. Other antecedents of perceived community resilience

In line with previous research on community resilience, community identification was positively associated with community resilience. Strong identification with one's community and its values will strengthen the social bond and promote connectedness within the community through collective experience and memory (Hogg, 2016). Social bond and connectedness could help build trust among community members and further enhance social capital in constructing community resilience. Recognition of social bond and connection within the community also make individuals more likely to support and assist others in the community on social media.

Collective efficacy was also positively associated with community resilience perception, highlighting that one's beliefs in the community's ability to work towards a common goal predicted one's beliefs in the

Table 3
Predictors of perceived community resilience.

| Variables | B | SE | T | p | R ² |
|------------------------|------|------|-------|------|----------------|
| <i>Final Model</i> | | | | | .67 |
| Collective efficacy | .45 | .084 | 15.22 | .000 | |
| Community ID | .24 | .049 | 8.33 | .000 | |
| Positive emotions | .18 | .030 | 6.45 | .000 | |
| Negative emotions | -.18 | .032 | -6.78 | .000 | |
| Social support Seeking | .12 | .049 | 4.57 | .000 | |

Note. $F(5, 676) = 273.04, p < .001. R^2 = 0.671$.

community's capacity to withstand and recover from the pandemic. More research is needed to further examine the test of whether self-efficacy has the same effect on the community actions and how specifically does efficacy perception influences one's participation in community-oriented actions on social media.

Emotions are less explored in the field of community resilience research, and few studies investigated the role emotion responses played in the construction of community resilience. Our study found that emotion responses are important factors concerning community resilience. Positive emotion responses to community actions are associated with a higher level of community resilience perception, while negative emotions are associated with a lower level of community resilience perception. Positive emotions experienced during the pandemic may strengthen community members' trust in their community's collective responses to the crisis, and further bolster their beliefs of how resilient their communities are. Additionally, negative emotions during a crisis are associated with distrust in organizations (Kim & Niederdeppe, 2013). In the community context, negative emotion responses to the community's handling of the pandemic can potentially undermine trust within the community, thus further impede the construction of community resilience.

There are several limitations to the current study. The sample of the current study was selected nationwide without any specifications of community or community type. Different communities may have different internal dynamic and members may use social media differently. Moreover, perception of community resilience can also reflect different communities' values and norms (Cohen et al., 2013). Thus, future research should look into how specific types of community use social media during a crisis, in terms of how different values and norms influence people's behavior seeking information and social support on social media, and how the construction of resilience differs among various communities.

Appendix

Measurement Items of Key Variables

Perceived Community Resilience, $M = 3.24$, $SD = .96$, $\alpha = .95$

1. I can depend on people in my community to come to my assistance during the pandemic.
2. There is mutual assistance and concern for others in my community during the pandemic.
3. I believe in the ability of my community to overcome the current pandemic.
4. There are people in my community who can assist me with coping with the pandemic.
5. There is trust among the members of my community.
6. The relations between the various groups in my community are good during the pandemic.
7. My family and I were acquainted with the emergency system of our community (to be activated during the pandemic).
8. The members of my community were acquainted with what their roles are during the pandemic.
9. My community was organized for emergency situations during the pandemic.
10. My community was well-prepared to handle the pandemic.
11. I am confident that my community will recover quickly after the pandemic.

Social Media – Information Seeking, $M = 2.45$, $SD = .99$, $\alpha = .86$

1. Follow local news outlets on social media to learn about the pandemic.
2. Follow national news outlets (e.g., CNN, Fox News, the NYT) on social media to learn about the pandemic.
3. Follow the relevant organizations (e.g., CDC) on social media to learn about the pandemic.
4. Learn more information about the pandemic from my friends and family on social media.
5. Seek more information about the pandemic from my community forum/page/Facebook group on social media.
6. Learn more about the crisis from social media alert (e.g., Facebook alert).

Social Media – Community Information Support, $M = 2.15$, $SD = .98$, $\alpha = .96$

1. Share useful information related to the pandemic on social media.
2. Forward useful pandemic information from news outlets or relevant organizations on social media.
3. Give advice on social media to community members on what they can do to protect themselves.
4. Support relevant organizations on social media.
5. Offer support to my friends and community members on social media.
6. Take time to help community members by posting/sharing information on social media.
7. Show my support to others by posting/sharing information on social media.
8. Identify useful resources for my community members by posting/sharing information on social media.
9. Try to post positive information on social media.
10. Focus on sharing positive pandemic information on social media.
11. Encourage community members to stay positive and optimistic by sharing/posting positive information.

Social Media – Social Support Seeking, $M = 2.03$, $SD = .95$, $\alpha = .93$

6. Conclusions

The importance of community resilience has gained recognition from scholars, policymakers, and international organizations. The World Health Organization has encouraged its member states to build resilient communities and supportive environments as a public health priority (WHO Regional Office for Europe, 2013). The U.S. Department of Health and Human Services also highlighted the construction of community resilience as one of the two major focuses of its National Health Security Strategy (Morton & Lurie, 2013). By providing a “bottom-up” voice about how people perceive community resilience during the pandemic, the current study highlights the importance of using social media as a community-based coping strategy during a public health crisis. The results should be used to promote community resilience by gaining social support and strengthening networked social capitals utilizing social media platforms. This becomes imperative to communities in a social distancing time, where social media become the major form of community-based communication. Through the examination of social media's role in building perceived community resilience during the Covid pandemic, this study contributed to the expanding application of community resilience to the effort of coping with public health crises and other disastrous conditions. The growing recognition of constructing community resilience as an attempt to combat public health challenges among health practitioners and researchers has become even more salient in the context of the current global pandemic.

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(continued)

| Measurement Items of Key Variables |
|---|
| 1. Seek comforts from my friends on social media. 2. Post on social media about how I feel. 3. Rely on others on social media to make me feel better. 4. Share my feelings with friends on social media whom I trusted and respected. 5. Ask friends with similar experiences on social media about what to do 6. Try to get advice from community members on social media about what to do Social Media – Information Avoidance, $M = 2.31$, $SD = .80$, $\alpha = .82$ 1. Try to take my mind off of the crisis by engaging with other topics on social media. 2. Avoid information related to the pandemic on social media. 3. Distract myself from thinking about the pandemic. 4. Find satisfaction in other things on social media. 5. Pretend that the pandemic never happened on social media. 6. Deny that the pandemic happened on social media. Collective Efficacy, $M = 3.66$, $SD = .92$, $\alpha = .86$ 1. I am confident that my community can respond in the best way to protect its members during the pandemic. 2. I am sure that my community has adequate resources to respond to crisis situation during the pandemic. 3. I believe together we can solve the problems posed by the pandemic. 4. We can come up with creative ideas to solve problems related to the pandemic, even if the external conditions are unfavorable. Community Identification, $M = 3.16$, $SD = 1.03$, $\alpha = .90$ 1. When someone criticizes my community, it feels like a personal insult. 2. I am very interested in what others think about my community. 3. When I talk about my community, I usually say “we” rather than “they”. 4. My community’s successes are my successes. 5. When someone praises my community, it feels like a personal compliment. 6. If a story in the media criticized my community, I would feel embarrassed. |

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