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Making Community Beliefs and Capacities Visible Through Care-mongering During COVID-19

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The COVID-19 global pandemic brought forth wide-ranging, unanticipated changes in human interaction, as communities rushed to slow the spread of the coronavirus. In response, local geographic community members created grassroots care-mongering groups on social media to facilitate acts of kindness, otherwise known as *care-mongering*. In this paper, we are interested in understanding the types of care-mongering that take place and how such care-mongering might contribute to community collective efficacy (CCE) and community resilience during a long-haul global pandemic. We conducted a content analysis of a care-mongering group on Facebook to understand how local community members innovated and developed care-mongering practices online. We observed three facets of care-mongering: showing appreciation for helpers, coming up with ways of supporting one another's needs, and continuing social interactions online and present design recommendations for further augmenting care-mongering practices for local disaster relief in online groups.

CCS Concepts: • Human-centered computing → Empirical studies in HCI.

Additional Key Words and Phrases: Care-mongering; community-based disaster relief; community collective efficacy; community resilience

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1 INTRODUCTION

The COVID-19 global pandemic was announced in March, 2020 [43] and has brought unprecedented hardship across the world. As of mid-September, 2021 in the United States, there were over 41 million cases and at least 660,000 deaths attributed to COVID-19 [59]. Unemployment skyrocketed, reaching highs greater than those of the Great Depression [4], and the country grappled with the effects of economic recession [40]. Schools were closed or forced to adapt to virtual learning, which put millions of children and families at risk of learning loss [25]. As the pandemic progressed, local government and non-profit resources were stretched increasingly thin, which made it difficult for people experiencing the secondary impacts of COVID-19 (e.g., financial, employment, housing, childcare, healthcare) [47] to access the resources that they need.

Oftentimes during disasters, local citizens utilize social media to initiate community-based approaches to disaster relief to fill in the gaps with needed support when government agencies cannot provide enough relief [36]. To combat the detrimental effects of the secondary impacts of COVID-19 as well as other restrictions, such as social distancing, aimed at the prevention of the spread of the virus, social media was widely appropriated by local citizens to facilitate *care-mongering*. Care-mongering describes the practice of acts of kindness that promote community camaraderie, i.e., Seow et al. [49] in geographic communities, i.e., cities or neighborhoods. Such appropriations are contributing to a revival of local community support, as ordinary citizens create informal networks of neighborly help through social media. Beginning in mid-March 2020, care-mongering groups began to appear on social media in the United States. Care-mongering groups are initiated as such by local citizens as a space for people to offer help to others within their communities. In these groups, members typically exchange various kinds of information, organize initiatives to address local needs (e.g., housing, food), ask for personal help, and offer to provide help to others [34]. Participation is open to anyone in the community. Using social media for care-mongering imparts a paradigm shift away from scare-mongering [16], i.e., spreading stories to inspire fear and worry, towards spreading positivity and goodwill [49], and paves the way for communities to develop new ways of interacting and taking care of one another.

Contributions to activities such as disaster relief efforts builds one's efficacy [1], or the belief that one can be successful in spite of challenges. Applying this concept to

communities, Carroll and Reese [10] developed *community collective efficacy (CCE)*, as a set of beliefs that community members hold about their local community's capacity to successfully traverse challenging situations. It is continually developed over time from direct participation in community initiatives and from understanding that others' are taking actions to better their community, but can wane if civic participation falters. Strong CCE is essential for developing and maintaining community resilience [46]. Community resilience refers to a community's collective capacity to organize and carry out efforts that benefit the collective. Because most people who are alive today have no experience living amidst a long-lasting global pandemic like COVID-19, many citizens were not sure if their local communities would be able to overcome multi-layered risks and crises effectively. Failed efforts by the collective to protect their community could negatively affect citizen's beliefs in their own community's capacity (i.e., decreased CCE), which can eventually reduce community resilience, thereby negatively impacting community-based relief efforts for COVID-19.

Prior work in crisis informatics investigated the growth of care-mongering as a social movement during COVID-19 [49, 55], but little attention has been paid to the specific types of care-mongering that occur over care-mongering groups on social media. We observed a local care-mongering group based in Austin, Texas, USA on Facebook and did a thematic analysis of the *care-mongering* posts and comments to answer the following research questions: 1) In what ways do local communities use social media care-mongering groups to practice care-mongering during the COVID-19 pandemic,

2) How can this practice relate to CCE and community resilience, and 3) What are the implications for designing systems to further support the locally-based care-mongering that we observed? Our findings contribute to the crisis informatics literature by bringing visibility to the importance of care-mongering on "community beliefs and capacities" and by showing how socio-technical systems can facilitate care-mongering during crises. Adaptive responses to pandemic restrictions support local community members to play an active role in caring for each other over social media care-mongering groups by engaging in three facets of care-mongering: showing appreciation for helpers, coming up with ways of supporting one another's needs, and continuing social interactions online. Based on our findings, we propose ideas for further augmenting the current practices of care-mongering.

2 RELATED WORK

Community is a broad term with many meanings; over 100 have been identified by Lyon in *The Community in Urban Society* [39]. For our purposes, *community* is shared geographic locality, such as a city or town, and members are those who live or work in the local area. We apply the model of community developed by Carroll [9] to the study of local online care-mongering groups. In this model, members bring community identity through shared experience and traditions in the local area, transform identity commitments into action through various forms of civic engagement, and through such interactions form new weak ties with others in the community [9]. In this section, examine how social media has been used in past disasters for citizen-based disaster relief, describe the care-mongering movement, and introduce community beliefs as community collective efficacy (CCE) and capacities as community resilience.

2.1 Citizen Social Media Use During Disaster Relief

Crisis management during disasters falls under either a top-down and bottom-up approach. Top-down approaches, such as the “command-and-control” model focus on the development of government agencies and other authority structures to communicate decisions around disaster management [18]. This approach can efficiently distribute first-response emergency resources, such as emergency medical technicians or police to where they are needed [36]. However, its’ weakness lies in its underestimation of the capacity of the social structure of the community to facilitate relief [18]. Bottom-up approaches, such as “community-based” disaster relief, are participatory models which incorporate social capital and direct action into disaster management [36]. Oftentimes, community-based relief arrives before top-down models, and can work in-tandem with government agencies to provide relief. Community-based relief is successful if the affected communities are actively involved in their own relief efforts.

Previous research in crisis informatics explored how online channels supported emergency management and awareness through citizen-responders and those immediately affected in the aftermath of a disaster. In many cases, citizens took on the role of journalist [20], updating others about the status of the disaster or providing real-time information about the

severity of the disaster in their area. As a form of informational support, citizens engaged in information exchange via social media. For example during the 2003 San Bernardino, CA wildfires and the 2005 Hurricane Katrina disaster, local citizens used microblogs and community websites to collect and share location- specific information, find missing people, and find temporary housing for displaced individuals [44]. With the 2007 Virginia Tech shooting, citizens used websites and social media to report personal information they had access to or had seen posted elsewhere, thus leveraging collective intelligence to arrive at accurate information about victims or missing persons [56]. Using Twitter hashtags for tracking information for disaster-relief was observed in a variety of disasters from the 2013 Boston Marathon Bombing [37] to the 2010 Haiti Earthquake [53] to the 2009 Red River Valley flood [45]. Other work has investigated how local people in affected areas leveraged social media or online communities to exchange instrumental support (e.g., food, shelter, rescue activities). During the Boston Marathon Bombing, citizens used Facebook to distribute food and as a chance to express emotional support for those affected by the disaster [15]. In the aftermath of Hurricane Harvey in 2017, providing social support such as resources and appreciation through social media strengthened neighborhood social relationships [38]. The use of social media to spread information generated by the public complements and extends official information provided by government agencies [45], and connects local people who can provide instrumental support to those who need it. Because the state-of-emergency period in the disasters that were studied was short-lived, previous work focused on fulfilling immediate, short-term needs. Because the active disaster periods of previously studied disasters (e.g., hurricanes, earthquakes, terrorism) were relatively short-lived compared to a global pandemic, and empirical studies that investigate citizen-based disaster relief during a long-haul disaster are just emerging (e.g., [33, 34, 51]), largely due to the recency of COVID-19 and the absence of previous disasters with similar spatial and temporal spans. The COVID-19 pandemic differs from previous disasters such as floods, wildfires and terrorism; it affected large portions of the world simultaneously and the state-of-emergency in the United States has lasted longer than one year as of this writing. This gave rise to conspiracy theories and scare-mongering which contributed to heightened anxiety and fear in the general public [16]; such dangerous beliefs could turn people against each other and the collective good thereby diminishing fellow citizen's beliefs in their community's capacity to overcome challenges caused by the pandemic over time.

2.2 Care-mongering During the COVID-19 Crisis

The spectrum of caring within a community is vast, ranging from informal acts of compassion and acknowledgement throughout daily life, to more focused caring about the welfare of others through teaching and learning. In local communities, acknowledging and leveraging the capacities of all members of a community is a key to creating effective care [7]. One's community can serve an important role during disasters by acting as a support system of care, i.e., looking after each other's needs and welfare. In the past, *altruistic communities* comprised of local people in the affected area provided help to fellow community members emerged in response to short-term disasters [2, 29]. In the aftermath of a disaster, care prioritizes offering help or care to those that need it most, usually people who are most vulnerable to the changing situation. During COVID-19, coordinated community helping had a positive impact on psychological bonding of community members by building a sense of community identification and unity during the pandemic [6].

Care-mongering is a social movement that arose on social media during COVID-19 as a space for citizens to come together support each other's needs. The term arises from from the less-positive word "scaremongering", i.e., the spreading of frightening or ominous reports or rumors, that became prevalent over social media at the beginning of the pandemic[19]. The often unpredictable events surrounding the pandemic fueled panic as misinformation, misleading rumors and conspiracy theories spread quickly via social media [16], initially outpacing the spread of the disease caused by the novel coronavirus, COVID-19. Social media sites became a hotbed of unverified information. During crisis situations, an abundance of rumors and a lack of clear information is known to play an active role in spreading fear and anxiety through social media [41, 57]. Such scare-mongering is prevalent and cascades through social media quickly as people collectively attempt to understand what is happening around them in periods of increased uncertainty. Online care-mongering was started to spread the opposite of panic in people, to bring out community camaraderie, and allow local citizens tackle the needs of those who are at-risk [19]. Care-mongering groups on social media are support-oriented, and spread kindness through acts of good-will and other pro-social behaviors, all while serving to connect people with others in their local community on a positive level.

The social issues that arose during the pandemic were not solely about the transmission of the virus that causes COVID-19 and risks to physical health. Rather, many

people experienced feelings of helplessness, as they didn't know where to go for support, or held negative feelings about their perceived inability to do anything about the situation [27]. Widespread lockdowns and social distancing measures implemented by local governments meant that familiar means of seeking support or helping the community was suddenly out of reach. Care-mongering became increasingly important. At the onset of the pandemic in March 2020 in the United States, local care-mongering groups began to appear on social media (e.g., Facebook), created by concerned local citizens who wanted to find a way to facilitate support for others in their geographic community [32, 34]. Care-mongering groups cater to the direct needs of their local populations by providing instrumental support, i.e., connecting individuals with specific aid requests to those who can provide aid, informational support, i.e., to locally-relevant information on stocks of supplies or connections to local resources, and emotional support, i.e., talking someone through a tough situation [5, 19, 34, 49, 55]. Care-mongering is based on voluntary reciprocity, where even the most vulnerable people also offer their help to the rest of the neighbors, especially by providing company and support [8]. While providing instrumental support (i.e., aid offers and requests) is an inherent part of taking care of one's community, equally important in the context of a long-haul disaster the emphasis placed on emotional support. Emotionally connecting to one's neighbors provides the opportunity for people to work together and strengthen their community's response to an ongoing disaster.

2.3 Community Beliefs and Capacities

Self-efficacy is an individual's belief in their own personal capacity to succeed in a specific domain [1]. Collective efficacy extends from self-efficacy; it is the extension from beliefs in personal level to beliefs in a joint group [21]. Community collective efficacy (CCE) is a subset of collective efficacy, which indicates beliefs of community members in their local community's capacity to be successful in a specific domain or situation [12]. As an example, a local citizen may hold the belief that their community can control hate speech while protecting members' freedom of expression.

2.3.1 Community Collective Efficacy. Prior studies have identified several factors that can lead to CCE. Firstly, people who are higher in CCE hold a stronger sense of belonging and attachment to other members of the community, in other words, one's neighbors, and are more activist in their community [12]. Social interaction, as simple as a neighborly conversation can increase sense of belonging [14]. Sense of belonging is self-

reinforcing; feeling like one's participation and contribution to a group matters, can further participation in future community activities [30]. Secondly, active participation in community events and activities, especially ones where neighbors can cooperate towards a common goal, is known to increase CCE [10]. For instance, people who participated in community activities, such as community gardening [54], community change actions and research [3], or neighbor-based organizations [42] had higher levels of community collective efficacy because these activities contributed to collective social good. Through engaging in such activities, people can recognize their own and other's capacities to achieve a common goal and further develop belief in the ability of their community to succeed. Thirdly, when people recognize their community's assets, such as community initiatives aimed at increasing safety and environmental sustainability, and the skills that fellow members employ to attain community goals, it makes those efforts more visible. Additionally, uncovering further community assets which were previously unknown or under-leveraged can lead to increased CCE [9]. However, asset visibility is not equally balanced such that not all assets or contributions are fully recognized; some can be completely invisible [9]. Surfacing previously invisible invisible community efforts can further strengthen CCE; members become aware of additional community assets, while those who were doing previously invisible work can get a sense that their contributions are valued and that what they do is important in the community.

Prior studies have seen the potential for information and communication technology (ICT) to

increase collective efficacy using community websites or smartphone applications. For instance, the usage of a community network that incorporates community news-related listservs, chat features, forms to register for local events, gives access to local businesses, or archives local historical places was found to increase CCE in that community [10]. A neighborhood storytelling network, where neighbors exchange casual everyday conversations or engage in discourse about community issues also brought an increase of CCE [31]. Accessing information from others in the local area is important to deal with new challenges in the community as such *weak tie* relations (e.g., acquaintances) increase the span of information and other resources that people can access [22]. The majority of studies in this area have focused on how ICT community networks can result in increased CCE in *normal everyday settings*.

2.3.2 *Community Resilience*. Community resilience refers to a community's capacity to recover from collective adversity. It is different from CCE in two aspects. First, CCE is a *belief* that citizens have in their community's capacity to overcome adversity, while community resilience is the *product* of actualized collective efforts. Second, CCE comprises beliefs around everyday capacities, such as holding beliefs about one's community's capacity to better social services for senior citizens or to reduce violence in the local community. In contrast, community resilience mainly focuses on disastrous situations, such as economic distress or natural disasters. Strengthening various contributing factors of CCE (e.g., social trust, social capital) is a critical factor to augment community resilience [46]. Therefore, in disaster settings, CCE is a citizen's belief in the community's capacity to successfully manage the disaster.

To best illustrate the differences between CCE and community resilience, we provide an example. During the COVID-19 pandemic, a local personal protective equipment (PPE) manufacturing group was started by concerned citizens who realized that PPE supplies for hospitals were limited in their area, and began producing masks, gowns and other necessary healthcare items [27]. The group's success in providing sufficient amounts of PPE and other healthcare items to local nursing homes and hospitals demonstrates community resilience. That concerned citizens started the group in the first place demonstrates their belief that their community is likely capable of providing support for healthcare workers (i.e. CCE). The result of the effort affirms such beliefs for those who contributed as well as for the larger community who benefited from the effort. As the example shows, the strength of CCE across a community can be used as a proxy for participation in community disaster relief, which can lead to community resilience.

Sustaining CCE is an urgent issue for a community undergoing a disaster, especially one as infrequent as a worldwide pandemic. People generally do not have past experience dealing with disasters, albeit prior experience is a major source of efficacy [1]. The response to the outbreak of COVID-19 deteriorated due to inexperience in long-term disaster management. The pandemic brought about unfamiliar social changes such as widespread lockdowns and social distancing. Because prior work focused heavily on community-based activities that build and maintain CCE in non-disaster contexts [10, 31] rather than disaster

contexts, researchers haven't had the opportunity to investigate activities that contribute to CCE during a long-haul period of distress such as that of the COVID-19 disaster, which as of this writing has been going on for over a year. The unprecedented nature of the COVID-19 crisis requires the ability of communities to pivot quickly and build on the community's existing strengths. Attachment to locality, neighbors, and shared concerns for threatened locale can build efficacy and fortify community resilience. Due to health risks associated with in-person gatherings, local communities had to rely heavily on social media to realize care-mongering. However, social media is designed for everyday use, not for disaster relief. We therefore examined how local communities adapted to the challenges and constraints of the pandemic through their improvised use of social media as a platform for online care-mongering. Our work contributes to the crisis informatics literature an analysis of the types of online care-mongering that occur during a long-term disaster, and how these types of care-mongering function as a key part of citizen-based disaster relief.

3 METHODS

The current study aims to understand the different types of care-mongering in care-mongering groups during COVID-19. Our methodology consists of observations of content from a care-mongering group on Facebook. We did a qualitative thematic analysis on the posts and comments using the constant comparative analysis approach for data analysis [13]. Because the data were publicly available, this study did not require approval by our university Institutional Review Board. However, due to potential ethical issues, we anonymized the name of the Facebook group that we analyzed as well as other identifying information (e.g., addresses, business names and user names) when quoting posts and comments in this paper.

3.1 Data Source

Previous research identified Facebook as the most widely used publicly available platform for local community-based pandemic-relief during COVID-19 [28]. Within the broad category of pandemic-relief support groups (e.g., mental health support groups, job search groups), local care-mongering groups were created en-mass on Facebook in the early days of the pandemic beginning in March, 2020. We used the following criteria to select a care-mongering Facebook group: (1) the group is a local care-mongering group, (2) covers a local area with sustained COVID-19 cases during the duration of the pandemic up until the end of the data collection

period, (3) is publicly discoverable on Facebook, (4) is open to anyone to join, view, or post, and (4) has frequent group activity.

The group *COVID-19 Community Relief for TX (pseudonym)* satisfied all selection criteria. Previous research noted that member participation in grass-root disaster communication platforms declined as the disaster stabilized [50]. Therefore we chose to investigate a group based in Austin, Texas because the area had a high level of COVID-19 cases compared with other areas in the United States during the entirety of the data collection window. The group is publicly discoverable and open to anyone to join, view or post. Group activity (e.g., posts and comments) has sustained since its' inception, which we used as a proxy indicator that the group serves a purpose in the local community. The group was created on March 14, 2020, and had a membership of over 5,000 as of January 19th, 2021. We explored all posts uploaded in the group between March 14th, 2020 and January 19th, 2021, when data collection was halted. We collected 2,254 posts in total.

3.2 Data Analysis

Members of *COVID-19 Community Relief for TX* uploaded a wide variety of posts pertaining to their local community, including aid requests, aid offers, local news articles, virtual events, volunteer opportunities and posts showing appreciation for others. To answer our research questions, we were interested in exploring “care-mongering” posts to discover underlying themes in type of care-mongering being expressed by the poster. We used the constant comparative analysis method

[13] to iteratively code each post through an inductive approach. One member of the research team filtered out irrelevant posts by reading each of the 2,254 posts and categorizing each post based on whether the poster was engaging in a form of care-mongering or something else. To meet the criteria for “care-mongering”, the post content needed to be generalized to the wider community (i.e., generalized exchange), and contain language that expressed care such as but not limited to “*We can get through this...*” or “*I appreciate...*”. Posts that were transactional or dyadic in nature (i.e., aid requests or offers) were not considered care-mongering because they represented reciprocal exchange. In addition, we filtered out general advice about the coronavirus because such posts were objective, and not intended as personalized messages. In total, we identified 107 posts of the original 2,254 as posts related to care-mongering. The 107 posts contained 761 total comments, which were also reviewed.

In the next step, we coded the 107 posts based on the type of care-mongering being expressed in the post. One member of the research team assigned each post one or more codes which were developed inductively based on our review of each of the posts and associated comments' content. After the initial coding process, the research team held a series of meetings and collectively read and discussed the posts to validate the original identified codes and aggregate them into higher-level codes. The final coding scheme contained seven codes: (1) appreciation (e.g., thanking); (2) inspiration (e.g., post encourages social-good action); (3) socialization (e.g., virtual meet-ups); (4) CCE (e.g., expressions of the poster's belief that their community can or did come together towards a common goal); (5) celebration (e.g., birthday parties); (6) encouragement (e.g., uplifting message) and (7) visibility (e.g., draw attention to someone's contribution). After the initial coding process, we developed the seven final codes into three themes. We combined (1) appreciation and (7) visibility into *Showing Appreciation for Helpers*, (2) inspiration (5) celebration and (6) encouragement into *Supporting One Another's Needs*, while (3) socialization became *Continuing Social Interactions Online*. We concluded that (4) CCE, was a super category that the three higher-level themes fell within, in that the other six categories are types of activities that can contribute to CCE. To validate our finalized themes, the research team collectively read all the posts and their associated comments for each theme and discussed any remaining discrepancies until an agreement was reached. While this process surfaced additional themes, we chose to present only those which related directly to our research questions about the practices of care-mongering.

4 FINDINGS

We observed that social media plays a key role in facilitating three facets of care-mongering during a long-haul disaster. Through the care-mongering group, members made visible the work of others as a show of *appreciation for helpers*, came up with means of *supporting one another's needs*, and figured out *safe ways to socially interact*. In the following subsections, we provide details into the activities that comprise each facet.

4.1 Showing Appreciation for Helpers

The group facilitated acts of appreciation for the helpers in the community, and revealed member's good deeds towards others. Acts of appreciation are a light-weight form of community engagement, where members enact collective identity [9], which is also a necessary building block for CCE [10]. Posters displayed various forms of appreciation for the helpers in their

community through the care-mongering group. Previous research suggests that increasing visibility of community activities can allow members to identify previously hidden community assets [11]. We noticed that in some cases, posters raised the visibility of people who were supporting the community “backstage”. The *Mask Creators* (pseudonym) were a local group who made fabric masks at their houses and donated them to frontline and healthcare workers early on in the pandemic, when masks were hard to come by. In this example, a poster made the Mask Warriors’ efforts visible by sharing how hard they worked to make the masks, and asking others to join in and show appreciation. Many people in the group commented with words of appreciation for the Mask Creators by naming the various frontline worker groups that received their donated masks.

Post: *MASK CREATORS WE APPRECIATE YOU! SHOW THEM SOME LOVE. THEY GET VERY LITTLE SLEEP, WORK 12-18 HR DAYS and RECEIVE NO PAY! OVER 500 MADE THIS WEEK.*

Comment 1: *thank you for getting Austin PD covered! I appreciate you*

Comment 2: *I know there are sooo many Austin Mask Creators who are silently donating to their communities. Please know that I truly appreciate you too.*

(All uploaded on April 19th, 2020)

By using a post to ask members to show appreciation, commenters on that post could elevate important volunteer work being done to keep the community safe from the coronavirus. Similarly, another poster brought visibility to local independent mask makers by asking them to show off their handiwork in the comments. The post received over 130 comments from people who shared photos of their handmade masks, told the group who the mask was for, and asked each other questions about the various mask-making materials they used. This post gave visibility into the individual efforts of community members and allowed group members to acknowledge their efforts with comments such as *Love it!* and *My fave! Great work!*

Post: *#MaskCreatorsAustin Let’s see some masks ladies. Show off your work here! Share your pics in comments. Can’t wait to see the workarounds!*

Comment 1: *are you making yours w/filter pockets? I’m attempting a new pattern*

tomorrow for a nurse I used to work with.

Comment 2: *Using ribbon and hair elastics since elastic is hard to come by! My neighbor 3D printed me some of the now-popular back of head loop hooks!*

(All uploaded on April 12th, 2020)

The above post recognizes individual's contributions to keeping people safe in the community. The mask photos that were uploaded as comments were also a source inspiration for other mask-makers, who got ideas for making their own masks from those examples.

Another act of appreciation occurred when a poster created a thread by asking the group to give a "shout out" to anyone in the group who helped them out (Uploaded on April 12th, 2020). This post generated over 50 comments from group members who added comments to acknowledge someone or to second an existing acknowledgement with expressions of gratitude such as *"We appreciate it so much, ya'!!!"* and *"We are the undercover heroes"*. While many acknowledgements in the comments went to healthcare and other frontline workers, we observed examples which included people who made masks for farmers, those who bought and/or delivered groceries and other necessities, and people who provided monetary donations or gift cards for families in need (all originally uploaded on April 12th, 2020).

Next, care-mongering was facilitated through collective appreciation posts for events aimed at acknowledging healthcare and other frontline workers. A poster recruited volunteers to deliver flowers to local hospitals to brighten the days of staff and patients (Uploaded on July 5th, 2020). Another poster aimed to raise awareness for his mission and to recruit group members to participate in thanking healthcare workers by sending them a personalized "thank you" letter (Uploaded on April 29th, 2020). Individuals could either volunteer to write letters or nominate a healthcare worker to receive a letter. The poster leveraged the group's membership to complete the letter-writing task and broadened the pool of people to thank by leveraging the member's personal networks to source healthcare workers.

In the same vein, posts for offline collective appreciation events also contributed to building CCE through visible, real-life examples of appreciation. For example, a poster wrote, *"Please light a candle outside your home tonight @ 7pm and let it shine for the safety of our 1st responders, nurses, and healthcare professionals #lettherebelight #shinelightforheroes"* (Uploaded on April 1st, 2020). This post alerted the group to the activity so that they could participate and spread the word, as well as understand what the candles represented to the community.

Showing appreciation for initiative outcomes was another way that the group was used to facilitate care-mongering. Through use of photos and videos, posters shared the results of their community care initiatives with the rest of the group. A poster took a photo of a table full of donated items and captioned it with, *“Some good news, our ATX community is amazing. This is donations from the public for the hospitals! Thank you. Please keep them coming because there are several hospitals, & we are only getting busier”* (Uploaded on April 29th, 2020). Other posters shared updates on people that were being helped by the group members. These types of posts brought awareness to members that the initiatives that were organized through the group made measurable, real-world impact on other local people in the community.

Post: *Thank you so much to all of you that have donated to Roberta (pseudonym) and her family! I’m happy to report that she saw the obgyn last week. Her baby girl is healthy and doing just fine! We’ve also been able to connect her with organizations that are willing to help her during this difficult time. A few weeks ago she had no resources and felt totally alone. Now she’s smiling and has hope for the future! They are forever grateful for your kindness and compassion! Thank you for being amazing human beings* (Uploaded on April 27th, 2020)

Comment 1: *Thank you for this update!* (Uploaded on April 27th, 2020)

Comment 2: *I still have the bag of newborn clothes and blankets if she’s still in need*

(Uploaded on April 28th, 2020)

As shown in the comments for the post above, the positive outcome also motivated members to offer additional support, further reinforcing the belief that the community can provide for members in need. This was similarly reflected in another post with a photo of PPE donations and a caption which read *“Shout out to Amy (pseudonym) for helping out our hospitals!!!”* (Uploaded on April 2nd, 2020). In this post, commenters offered to donate supplies from their own stock to help hospital workers, such as one who offered *“91% alcohol, aloe vera gel if you want to make handsantzier”* (Uploaded on April 2nd, 2020). Posts that showed appreciation for ongoing community activities such as the PPE donation drive inspired more members to become involved in care-mongering, and built the belief that community initiatives can provide necessary support for local members.

Finally, the group was utilized as a safe space for general appreciation, and for acknowledging oneself as a part of a community which focused on support for others during a difficult time. In one case, a poster realized that she could do something good for her community through the group (Uploaded on April 5th, 2020). She expressed gratitude for being amongst helpers and encouraged members to keep helping others. Another poster recognized that the group was a positive alternative to the scare-mongering that can occur on social media, and was inspired by how group members used social media to come together and support each other (Uploaded on April 1st, 2020). Commenters echoed her thoughts and added that the post served as a reminder that they are doing good work, and was a helpful motivator to continue supporting others, even if it is sometimes difficult to see their impact (All comments uploaded on April 1st, 2020). This thread emphasized self-efficacy, in that the posters were developing their own belief that they were capable helpers, and the thread displayed these member's collective beliefs that their community was capable of care-mongering to others who viewed the post the group.

4.2 Supporting One Another's Needs

Members used the care-mongering group to facilitate direct actions to benefit local people or solve needs in their local community. We observed that members were actively doing things to support other individuals enmass in the community by posting their initiatives on the group and recruiting people to take part in them.

Posts notifying the group about collective birthday celebrations were frequent. Notably, because children were unable to have usual birthday celebrations due to social distancing and other regulations limiting in-person gatherings, group members organized to provide a memorable experience for local children. One organizer of a drive-by birthday event posted details about it to the group in order to solicit donations for birthday gifts or invite members to participate in a socially distanced celebration. In another example, a community member posted that he was organizing a car parade to drive by the child's house with birthday wishes, as well as to bring donations for the family to host a private celebration (Uploaded on April 17th, 2020). The poster provided his email address so that people who wanted to join in the parade could get location information. In another example, the poster was coordinating a gift drop-off for a birthday party for a local child. In the post below, she gave information about what had already been secured for this party. Comments indicated that this type of event was recurring on the group.

Post: Last call if you would like to help out with the bday of the family going through childhood cancer! We got a food truck to sponsor the food, a cake company to customize a Minecraft cake, the Nintendo switch, bed sheets, blankets, shoes, and Sodas. We also booked a life sized pikachu to surprise the family! If you would like to help offset any costs, please let us know! [Includes photos of the children] (Uploaded on April 30th, 2020) **Comment 1:** That is amazing! If anything is needed let me know. I'd love to contribute something. (Uploaded on April 30th, 2020)

Comment 2: Wish we could drive out for this one too!! He looks so sweet! Let me know if there is anything I can do from Htown. (Uploaded on April 30th, 2020)

Comment 3: How did the party turn out? (Uploaded on May 3rd, 2020)

Posts disseminating information about celebratory events grabbed the attention of the group. Commenters applauded the community's efforts or volunteered to contribute to the event. These posts furthered the impression that the local community cares about its' children by coming together to create socially-distanced special events for kids and families.

Another way the group facilitated support was through providing food for people who were experiencing houselessness and other families in need. Some members of the group used posts to organize a community soup operation, where they posted about making large portions of hot soup to give away. A poster requested help from the group for buying ingredients, cooking, and delivering the soup around town (Uploaded on November 5th, 2020). In another post, she updated the group about how their donations helped their community.

Post: Thanks y'all! See below how your donations helped feed the homeless so far! I'll be making more soup this week! Update: I'm on pot 3 & 4 already!! Thanks to many of YOU with your generous donations, we just got back from delivering 18 cups of hot chicken tortilla soup, waters, blankets, mittens, fleece scarves, AND hand warmers to the homeless. Everyone was so appreciative and sweet. One gentlemen walked with us a bit to help us hand out supplies and soup to his fellow campers[...]. Definitely need more of the cold weather supplies to be able to keep helping as we can. And it doesn't have to be new things from amazon! We LOVE to take old blankets, comforters, gloves, scarves, beanies off of your hands! (Uploaded on October 26th, 2020)

Commenter: Hey could you do the same with oatmeal? serve in cups. I have several bags of oatmeal, cartons of the shelved milk.. just need the sugar/bwn sugar...

(Uploaded on October 27th, 2020)

Poster: *that's a great idea but right now I have to get through all of the soup donations. Will keep that in mind tho!!* (Uploaded on October 27th, 2020)

Commenter: *let me know, ill help with prep. Those cups were a great idea, better than what i had serving up... pm you now* (Uploaded on October 27th, 2020)

The post with the update received comments from a person who saw the initiative on the group and wanted to contribute to the mission with his own ideas for making healthy food. He connected with the organizer through the thread.

The group provided a forum for local people to present ideas for how to collectively solve local needs, such as reducing the spread of the coronavirus. Posters raised awareness about risky activities and how to modify one's behavior to keep the community safer. One poster suggested that members could reduce their risk of spreading COVID-19 during Thanksgiving by not traveling. Instead, the poster offered support to others who may be lonely if they followed this advice by offering to video chat with people who were not meeting family.

Post: *As everybody knows, Thanksgiving is just 2 days away. **Per the recommendations of the CDC and every doctor I know, I urge people to stay within their existing and immediate circle of exposure of friends/family, rather than travel and link up with loved ones beyond that radius.** My husband and I will be hanging just the 2 of us of Thursday, and I'm happy to zoom in with any one of y'all should you want some company. Furthermore, let's make a fun feed for inspiration. What is a favorite tradition or recipe that you typically enjoy with YOUR family on Thanksgiving. How will you be celebrating differently this year? Any creative ways your family has adapted to the times? Share with us! Perhaps we can try to include in ours!* (Uploaded on November 24th, 2020)

Comment 1: *Wanted share this with y'all in case someone finds this helpful. Zoom is waiving the 40 minute time limit on Thanksgiving.* (Uploaded on November 24th, 2020) **Comment 2:** *We actually had our first family zoom the other day with 5 or so other family households. It was so nice and lasted almost an hour and a half. I highly recommend it.* (Uploaded on November 25th, 2020)

This post initiated a conversation about video conferencing as a safe alternative to

in-person gatherings. Commenters shared their experiences of video chatting with their families, as well as how they adapted their holiday celebration. Comments about virtual celebrations showed other members who read the thread that many people in their local area had found ways of remotely celebrating holidays with their loved ones, and that these options were suitable replacements for usual holiday celebrations.

A poster who worked at a local retail store which was considered an essential business gave advice about how to shop efficiently and safely both to limit exposure to the virus, as well as protect essential workers at the store (Uploaded on March 30th, 2020). The poster asked members to share his message in order to inform others outside of the group about safe practices when running errands.

Group members utilized the care-mongering group to provide care to individuals in the community through organizing, publicizing and reporting back on socially-distanced children's birthday celebrations. They initiated a community soup operation which provided food to individuals and families in need. The group supported one another with advice and suggested alternatives to pre-pandemic norms aimed at helping their community control the spread of COVID-19. These activities showed care and good-will towards others' well-being, and also reinforced the idea that the community is resilient and able to overcome challenging situations.

4.3 Continuing Social Interactions Online

Prior to the pandemic, local community members could build social bonds with previously unrelated neighbors and reinforce social relationships with acquaintances by attending local events or gatherings. Stronger social ties cultivate a sense of belonging among individuals [26] which extends to community cohesion and reinforces collective identity [24, 60]. Collective identity, or the shared values, traditions and experiences of a community [9] contributes a sense of belonging, which is known to build CCE in non-disaster contexts [10]. During the pandemic, local communities have reconsidered how community members interact with each other in order to remove some of the health risks regarding airborne virus transmission when socializing during a pandemic. Attending to the health of others by moving things online is a form of care.

Within the care-mongering group, members enacted community through inviting others to their virtual events, and through posting about interesting local virtual events that they attended.

For example, a poster said she wanted to socialize with others in the local community, and offered to organize a virtual meet-up with members of the group who were also quarantining (Uploaded on September 8th, 2020).

Similarly, because of the restrictions and hesitancy around meeting in-person, members utilized the care-mongering group to build their networks virtually by bringing attention to virtual meet-up events hosted by local special-interest groups. Such posts provided opportunities for members to get involved with other similarly-minded local people while simultaneously practicing social- distancing.

Post: Ladies, if you are looking for ways to connect with other women during social distancing, this is the perfect hype squad! We are hosting a free virtual meeting on the 7th! [\[link\]](#) You can join the group Austin Women's Empowerment Meetup to interact with like-minded supportive women. We are all in this. (Uploaded on April 27th, 2020)

The above post let group members know that a local social activity had moved online, while also reinforcing the idea that the community can get through the pandemic by connecting with one another.

In another case, a poster acknowledged that some members may not understand how to use video conferencing tools to create virtual events or communicate with their family or friends. Rather than risk one's health, the poster promoted safe socializing by offering to teach other group members how to use video conferencing tools.

Post: Save Christmas - As more people are forced to have a cyber Christmas this year because of the Pandemic, I want to help bring people together online. Feel free to message me for free info about things like online video conferencing or Live webcast. (Uploaded on December 21st, 2020)

Investing in others' abilities to keep the community safe is a form of care. This offer gave non- technically savvy members a chance to learn new technologies and participate in network-building through virtual versions of local events. Hosting local hangouts and moving formerly in-person events into the virtual environment supported safe socializing, and gave members a chance to meet new people and build local support networks.

The three facets of care-mongering described in this section were instrumental in providing an avenue to receive support and to put one's skills to work in the service of others during the COVID- 19 pandemic. Members used the care-mongering group as a place to

demonstrate appreciation for other's good deeds, create and engage others in civic initiatives which addressed pressing local needs, and help people adapt to virtual modes of socializing.

5 DISCUSSION

Care-mongering groups on social media provided an important space for community care during long-haul COVID-19 disaster which had overturned everyday life, specifically through the three facets of care-mongering that we identified: 1) showing appreciation for helpers; 2) supporting one another's needs; 3) continuing social interactions online. In the following subsections, we will explore how socio-technical systems (i.e., social media) facilitate the facets of care-mongering, and consider how they might contribute to the development of community beliefs and capacities, i.e., CCE and community resilience. Based on the findings, we present design recommendations for sociotechnical systems to further augment the practices of care-mongering that we identified on social media during long-haul disasters.

5.1 Visibility of Acts of Gratitude

In Section 4.1 *showing appreciation for helpers*, group members brought awareness to other's good deeds and elevated pro-social initiatives. We observed people appreciating both frontline healthcare workers as well as a wider range of community members including mask makers, food donors and people who provided goods to families in need (Section 4.1). The roles being appreciated in the group were not commonly considered during the pandemic, as most acts of appreciation that made the national news were directed to frontline workers [58]. Because we observed that group members utilized posts to start threads specifically aimed at acknowledging others' efforts, this suggests that the group sees public thanking as an expression of care. The expressions of gratitude within the public forum of the care-mongering group are good for everyone in that their content can show that people in the community see and value the good work that is being done. For instance, the collective gratitude shown towards mask makers shed visibility on a previously unrecognized community asset; this particular asset is vital to effective disaster relief during a long-haul disaster. This example echoes how CCE is developed and maintained in everyday contexts [9], and suggests that similar mechanisms are at work in disaster contexts. Such beliefs when acted upon, for example, supporting the mask makers by offering advice or supplies as commenters did in 4.1, contribute to actualized capacities associated with community resilience (i.e., the community can provision the masks to

people in need, thus alleviating the dearth of PPE) and stronger collective performance [1, 46]. The posts helped group members become aware of individual mask makers contributions, which can increase member's beliefs that their community can cope with a difficult situation together where there was a dearth of PPE early on in the pandemic. For those who get appreciated, collective gratitude can help them feel that their efforts are of value to others [17], which gives them a sense of social worth because they are needed in their community [48]. Increased social worth leads to more active contributions [23], which supports the notion that during a long-haul disaster for which the end date was unknown, expressions of gratitude can be a source of CCE in care-mongering groups and can motivate people to continue their contributions, thereby further contributing to actualized capacities for disaster relief.

To augment public acts of appreciation and make them more visible and thus easier to locate in social media groups, groups could implement a digital "thank you" board, which would put all of the community members who benefited the community under the public spotlight. In contrast to a simple Facebook timeline where appreciation posts can be buried and are mixed-in with other content, a digital board could keep the posts separate and easy to notice. Community members could express their gratitude by leaving thank-you notes, or look back to see whose labor they may have taken for granted by reading other's posts. They could also tag their friends or family members whose jobs or roles are being appreciated to extend the appreciation to them. Administrators could observe which community workers are less frequently mentioned on the board and upload a "thank-you" post to seed appreciation for that type of work or role. This way, appreciation can be spread out amongst many categories of helpers, increasing the visibility of the variety of help and support that members contribute to their community. This type of stationary board addresses one of the design limitations of using a news feed to facilitate care-mongering in an online group, which is that important posts can get buried by the algorithm if the comment-activity level drops or many other posters are actively posting on the group [34], even if the post is of importance to the group as a whole. We imagine that the thank you board could replace individual posts of appreciation on the timeline, which can be difficult to recognize as appreciation.

5.2 Fostering Participation in Pro-Social Activities

Posts displaying outcomes of successful collective pro-social activities (e.g., offering a channel to plug in resources or abilities to help the community) can nudge other members to be

involved in pro-social activities. For instance, members created threads containing photos of donations from the public for local hospitals (Section 4.1) and updates on how much soup was made and delivered with via community donations (Section 4.2), which served to remind those who worked together for the cause of their positive impact on the community and acted as proof to other members that the community served those in need. These successful products of neighborly cooperation and achievement of a common goal can lead to increased CCE [10]. Those who worked together recognize that their efforts succeeded and believe that they can achieve their goals through similar pro-social activities again, which makes it more likely for them to participate in the next one. Other members can recognize that collective efforts are out there to help the others in the community and can gain beliefs that their community can cope with difficult situations. Furthermore, such visualizations of delicate collective products encourage them to become involved in the future because individuals are more likely to participate in groups which are successful [61], which may lead to increased community resilience. Indeed, we observed that commenters reached out to posters to learn how they could contribute to the initiatives that were discussed in the post or thread.

The goal of online care-mongering is providing support during a disaster, which necessitates

participation in pro-social activities. Maintaining activity on the group is necessary for care-mongering groups to persist amidst a long-lasting disaster. One way this could be supported is to incorporate a digital “picture book” of member-organized civic initiatives that serve local needs. The picture book could be a feature separate from the general news feed, which, similar to the implication in 5.1, addresses the design limitation of news feeds with respect to posts being buried by the algorithm. The picture book would act as a visual account of group member’s civic initiatives and other care-mongering contributions. By depicting what other’s are doing, it is easier to imagine what it would be like to participate. The picture book could have a sorting feature for the initiatives, e.g., chronological, by organizer, or by type of initiative. Images of outcomes and a short description of the impact could bring awareness to other members that their community is making strides towards addressing needs. Under each initiative, a quick explanation of opportunities to contribute and when the next instance will occur can nudge members towards participation. Additionally, it can facilitate user interactions which can lead to future participation such as recognizing the impact of an initiatives by giving “kudos”, or

indicating willingness to help. Providing visual content about care-mongering initiatives in one place can better highlight community capacities. The digital picture book can fit into the ecology of the group as a central repository for the products of care-mongering initiatives, e.g., mask making or bowls of hot soup. Rather than post new updates for recurring initiatives as separate posts on a news feed, members could add new photos to their initiative in the book.

5.3 Safe Spaces to Create Weak Ties During The Pandemic

The pandemic changed the nature of social interactions; familiar in-person events and activities were suddenly cancelled and people had to find alternative ways to engage with other members of their community. As an act of kindness towards reducing everyone's risk of catching or spreading the virus, we observed that group members used the care-mongering group to socialize virtual community events, hold online meet-ups with others who were following social-distancing measures, and to check in on lonely individuals in their area. The examples of virtual gatherings as outlined in Section 4.3 *continuing social interactions online* show that members promoted safe socializing and offered ways for people to meet new people in their community. Similarly, in Section 4.2, *supporting one another's needs*, members expanded their social networks through becoming volunteers at community initiated events in the off-line space.

Developing new weak ties through care-mongering was possible in care-mongering groups as they often have a low barrier to entry, i.e., anyone can join, which means that most members join without necessarily knowing other members beforehand. One of the strengths of weak ties is that they can lead to the acquisition of valued resources for the local community [22], i.e., aid in a crisis situation. First, people can get involved in community efforts that were previously unknown to them through a wider net of social contacts. For example, commenters who helped organize the drive-by birthday parade later followed up on a post about the outcome to ask how it went and offer additional support. Second, participating in care-mongering provides opportunities for people who do not have enough support through weak ties in their network to create more weak ties [52]. Weak ties, being distant social relations characterized by infrequent interactions, provide opportunities (e.g., insights into how others are helping each other) and integration (i.e. forming new acquaintances) into the community [22]. The insights and network that weak ties bring make developing CCE and resilience possible at the community-level.

Based on our findings in 4.2 and 4.3, there are implications for increasing social presence to form weak ties in the care-mongering group. Rather than majority text-based communication, which is the norm in social media yet leads to low social presence [35], multi-signal communication interfaces with higher social presence (i.e., text-based chat, audio, and video) such as “virtual rooms” could be built into the group. Borrowing aspects of the community’s identity builds cohesion [9], for example the virtual rooms could be named after local buildings or other places of interest, which can help people feel like they are interacting with others in a familiar place in their own town. If the virtual rooms were always available, people could spontaneously drop in and meet each other or plan care-mongering initiatives together. This could lead to social experiences which form unique new ties in the community and create a foundation for additional care-mongering initiatives.

Moreover, some initiatives that were planned online through the care-mongering group required group members to interact with unknown others offline (e.g., in 4.2 members could plan the community soup drive on the group, but had to go out into the community to deliver the soup). In such cases, people didn’t have an easy way of finding out which safety protocols would be in place when such information could increase their confidence in choosing an offline initiative with an acceptable level of risk. Although people may want to meet each other in-person, they also want to keep themselves and others safe from the coronavirus, therefore they need to be confident that the initiative would not put them in too close proximity to unknown others and is therefore safe to join. To address this, initiatives posted to the group could include tags that mention the safety protocols that are in-place for the event such as the type of event (i.e., virtual or in-person;), the maximum number of people allowed to gather in-person to allow for social distancing, masking/hand washing requirements, and the location of event (i.e., indoors or outdoors). This can support the decision-making process when considering how to contribute to various care-mongering initiatives.

Creating new digital artifacts such as the *thank you* board for public acknowledgement of pro-social activities, the *picture book* of outcomes of care-mongering initiatives and bringing in a multi-signal communication interface for social presence through the use of *virtual rooms* codifies care-mongering and enriches disaster-relief practices. This study fills the gap of understanding the care-mongering movement as a form of disaster relief in the crisis informatics literature by examining care-mongering in online platforms as a bottom-up response to long-

term crises. Enhancing appreciation of others who have done good deeds in the community, increasing participation in initiatives, and developing community social networks can create awareness around care-mongering in the wider local community, allowing fellow citizens a glimpse into the capacities of other community member's to provide care as a form of disaster relief.

Limitations and future work. We observed one care-mongering group on Facebook and analyzed each post in detail to understand how members used social media to practice care-mongering. Our key focus was not on obtaining broad trends, rather it was to deeply understand care-mongering practices. Our group was located in Texas, USA, a location with a high-level of community COVID-19 spread. Future work could analyze additional care-mongering groups to see if new themes arise from groups in other regions or countries. We plan to conduct interviews with care-mongering group organizers to investigate how online care-mongering practices sustain and evolve as the pandemic progresses.

6 CONCLUSION

In this study, we investigated care-mongering practices in an online care-mongering group. We found that socio-technical systems facilitate care mongering through three facets, which can bring visibility to community beliefs (i.e., CCE) and capacities (i.e., resilience). Our analysis surfaced design implications for further augmenting care-mongering in care-mongering groups on social media during long-haul disasters. The care-mongering movement is an example of a community co-producing disaster relief and is key to effective bottom-up, community-based care. If we can leverage social media to grow care-mongering, we can continue to find new ways to develop the capacities of local communities. Disasters such as the COVID-19 pandemic remind us of things we take for granted. Perhaps this crisis can help us realize our collective dependency and the possibilities that arise through caring for one another.

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