QUALITATIVE HEALTH COMMUNICATION
VOLUME 2, ISSUE 1, 2023
ISSN: 2597-1417

Mask making on social media: Women's mask making practices and advocacy during the COVID-19 pandemic

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QHC Qualitative Health Communication

ABSTRACT

Background: COVID-19, the disease caused by the virus SARS-COV-2, can create serious respiratory problems, or even death, for those affected. Individuals who share messages about its risks and related risk reduction behaviors have the potential to make a broader health impact. Early in the pandemic, some individuals made homemade masks to address the limited supply of personal protective equipment (PPE) and posted about their efforts on social media. **Aim:** To understand the grassroots application of the Crisis and Emergency Risk Communication (CERC) theoretical model concerning effective messages in early phases of a crisis. **Methods:** Using both individual interviews and observations, researchers conducted a study of 15 Appalachian women making masks during the Covid-19 pandemic and analyzed 9 of their social media accounts. **Results:** Through interviews and observations, the researchers gained understanding as to how mask makers used social media to create and distribute masks and engage their communities. Social media messages often contained calls to action, personal connections to the issue, and supported the mask makers' efforts to reach a broader network of individuals. **Discussion**: An evaluation of the grassroots efforts of mask makers extends the CERC framework to the individual level. **Conclusions:** This study provides insight into the role of grassroots health advocacy, and the role of user-generated social media messaging in pandemic risk reduction.

KEYWORDS

Advocacy, COVID-19, health communication, public health, social media

BIOGRAPHIES

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Introduction

Early in the COVID-19 pandemic, many people were looking for ways to dispel risks. As the quantity of messages, intensity, and potential severity of COVID-19 became clearer, people sought trusted information and shared this with others (Kratzke et. al., 2021; Richards & Perreault, 2021; Servick, 2020). During this time, some women began to make face masks to maintain self-efficacy and cope with ever-changing health guidelines (Lyu & Wehby, 2020; Martinelli et al., 2021). Mask makers generally acted with the intent to share those masks with those they knew, medical professionals, the elderly and/or immune-compromised, and anyone else in their communities in need of a mask (Richards & Perreault, 2021).

This paper argues that as evidence of the effectiveness in masking for disease prevention mounted, women acted and displayed self-efficacy in mask creation. In times of crisis, people seek to calm fears and social media messages are one way people share concerns and actions with others (Spence et al., 2015). The access many women had to social media made gathering mask-making instructions and sharing masks more feasible even in a pandemic.

Bounding the study with the Crisis and Emergency Risk Communication Model (CERC), the authors examine the communication of 15 women in the Appalachian region of the United States who made masks as the COVID-19 pandemic spread.

The situation

COVID-19 had been in the international conversation since late 2019 when cases first appeared in Wuhan, China, but many in the United States began to take greater notice of the severity of the virus's destruction in March 2020. By March 13, larger US cities like Los Angeles, Seattle, and New York City issued Shelter-in-Place orders requiring people to avoid public spaces, while many smaller cities issued social distancing recommendations. These regulations sought to flatten the quickly increasing epidemiological curve of those affected with the virus, and in turn alleviate hospitals from overpopulating with patients needing care. During this same time, panic purchasing, particularly of medical protective equipment like masks, began to take place as families prepared for the virus to hit their communities. Because of this, hospitals began to lose access to personal protective equipment (PPE), including surgical and N95 masks (Lee, 2020).

Communication regarding the need for masks in disease prevention efforts was muddled during this time. At first, the United States Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) had both suggested that only those who were ill or caring for the ill should wear facemasks. In April, the CDC recommended all people consider wearing masks to stop potential airborne spread of the virus (CDC, 2020). The WHO also reversed their statement in April and asked that people wear masks when they could not be at least 6 feet away from another person, based on more recent research that found people could be asymptomatic carriers of COVID-19 (WHO, 2020). The White House also followed suit

in early April, when President Donald Trump announced that people should use a cloth face covering when they visit crowded places as a precaution (McDonald, 2020).

Mask wearing information has been challenging and at times contentious. Many news outlets provided clarifying information to their audiences in July 2020 (Godoy & McCammon, 2020). In addition, many local news organizations worked to provide context to their local audiences based on local COVID-19 numbers but faced questions and misinformation on social media (Perreault & Perreault, 2021; Perreault et al., 2022). Walker (2016) anticipated this phenomenon, based on both the predicted volume of social media usage and potential for unscrupulous usage.

Before the coronavirus pandemic, there had not been a lot of research on the effectiveness of homemade masks. Since March 2020, research has shown any type of mask can make a difference in virus transmission, although certain types of masks are more effective (Oberg & Brosseau, 2008). Based on the anticipated disease control benefits, Texas, Alabama, Colorado and Arkansas and many other states issued a mandatory public mask order in July in response to spikes in cases (Hauck, 2020). While many states left it up to businesses and schools to weigh in on their own preventative measures, many organizations also adopted recommendations made by the CDC and other health agencies.

With a grounding in the fields of health communication, the CERC framework for crisis communication, and social media engagement, we sought to better understand the social media communication and actions of women making masks with this research question:

RQ: How did mask makers utilize social media to advocate for masks and cope with the COVID-19 crisis?

Literature review

This paper uses the theoretical frameworks of the Crisis and Emergency Risk Communication (CERC) model and grounding literature around crisis self-efficacy to understand the grassroots health communication, crisis responses of women, and exchanges of information on social media.

Crisis and emergency risk communication and crisis self-efficacy

Research about crisis response and resilience has been rooted in the CERC model, which assumes crisis events develop along a somewhat predictable pattern (Reynolds & Seeger, 2005). CERC, as a theoretical framework, recognizes the importance of participation in message assessment and meaning making to provide individuals the chance to help themselves recover from a crisis or disaster (Veil et al., 2008, p. 29). As such, self-efficacy, or the capacity to execute behaviors necessary to produce specific outcomes, is an important aspect of the model (Bandura, 2000). While CERC was originally a practice-driven training program created for the United States CDC, the framework brought other risk and crisis theories into view and has since developed into a theoretical framework concerning adequate and engaged crisis response (Veil et al., 2008).

In this model, the first phase is the preparation for and initial onset of the crisis; the second phase is “hallmarked by uncertainty reduction, self-efficacy and reassurance” (Reynolds &

Seeger, 2005). In the third phase, the public is encouraged to complete actions which will help them to manage the crisis at the individual and communal level (Reynolds & Seeger, 2005).

While CERC has historically focused on organizations rather than individual grassroots health initiatives, social media gives users the opportunity to comment on issues, share risks, and communicate their actions and adaptations (Frisby et al., 2013; Vos & Buckner, 2016). This type of grassroots health communication, frequently using localized and intentional messaging, may also curb stigma and empower people to change their behavior in relationship to health risks and crises (Corrigan, 2000; Han & Jo, 2012; Maughan-Brown et al., 2015). Sensemaking through understanding these messages is identified in the ways people process the event into a framework, comprehend what has happened, accommodate what is unexpected, produce understanding, and identify patterns (Weick et al., 2005).

CERC also provides a model for examining the roles and responses people have to certain messages at certain times (Veil et al., 2008). Self-efficacy has been increasingly served by social media as it provides agency for individuals who, working together, can create collective efficacy in situations (Lachlan et al., 2016). People who are empowered to act in a crisis are more likely to cope well with a crisis (Spence et al., 2007). While most CERC research has focused on mass media messages, some studies have found that individuals working to cope with a crisis often reshare stories on social media which may lead to a more informed public (Ophir & Jamieson, 2020; Houston et al., 2015; Zhao et al., 2018). In the case of public health crises, studies have recognized that engaged individuals can thus contribute to more effective health messaging (Cairns et al., 2013; Dickman et al., 2014; Frieden, 2014; Karidakis, 2022; Ruiu, 2020; Tay et al., 2010). When a crisis hits, CERC recommends that people respond with empathy, intention and accurate information by building relationships with those in the community, and encouraging them to act (Veil et al., 2008)

Women and crisis response

While women are more likely to seek and trust information that relates to crises (Aldoory et al., 2010; Perreault et al., 2014), literature concerning their role in pandemics has been absent from health communication and public relations research. Throughout history, women facing crises have planted victory gardens, salvaged, and repurposed materials, and taken up jobs that were previously held by men (e.g., in World Wars I and II) (Lytle, 2017; Milkman & Milkman, 1976; Yesil, 2004). In addition, studies have shown women in crisis situations often put others before themselves (Vardeman & Aldoory, 2008). Thus, women frequently spearhead public health movements, creating drives and other events related to health challenges faced by loved ones (for example, educational and fundraising events concerning HIV and breast cancer) (Dubriwny, 2012; Kar et al., 1999; Leslie et al., 2003; Osuch et al., 2012). Over the years, crafting has also been a frequent tool employed for the purposes of women's advocacy (Rall & Costello, 2010). Such action and self-empowerment have been linked to long-term crisis resilience.

As the field of women and health communication has developed, more scholars have acknowledged the challenges women face interacting outside of established networks. Women who communicate crisis and health messages to their publics often find strength in

geographically targeted efforts but can resultingly be disconnected from larger communities (Vardeman-Winter, 2017). Aldoory's (2001) general theory about women's health communication suggests that women communicate around "every day, salient barriers; that women's self-images are not reflected in communication portrayals; and that socioeconomic status is a salient determinant of whether women can act—or seek information—about risks" (Vardeman-Winter, 2017). Appalachia women creating masks were both a source of information and means to address the pandemic risks in their communities, both virtual and geographic.

Social media practices and public health communication

Social media has changed the access to health information and the way that healthcare organizations interact with individuals (Moorhead et al., 2013). Digital communication from trustworthy sources, particularly via social media, has the potential to help in times of public health crisis (Goldberg et al., 2020; Guidry et al., 2017), but it can also cause irreparable damage when used irresponsibly (Depoux et al., 2020; Sharma et al., 2016). In the United States, 72 percent of adults use social media and 75 percent of women use Facebook (Perrin & Anderson, 2019), with many of these individuals also using social media for healthcare purposes (Surani et al., 2017).

Successful public health programs must include community engagement at the grassroots level (Frieden, 2014). Successful health and crisis engagement campaigns have used social media to share information, gain engagement, and elicit crisis response (Austin et al., 2012; Freeman et al., 2015; Houston et al. 2015; Wendling et al., 2013). On social media, people can reach out to their social networks as well as people slightly removed from their networks to improve communal crisis response. However, social media can also become a haven for misinformation during crises and disasters and scientific evidence may be disputed, as much information is difficult to fact check in real time (Bennett et al., 2010; Jahng, 2021; Sell et al., 2020.) In this way, sharing crisis information helps people to communicate with their communities, but also advocates for a specific stance.

Public health messages about mask wearing

Mask wearing is a common practice in many countries; however, before COVID-19, many people assumed mask wearing was to protect people wearing the masks, not those without masks (Cowling et al., 2010). This posed a challenge at the beginning of the pandemic as many people saw wearing a mask as unnecessary and unhelpful. Research on the public perception of mask wearing in the United States during the April 2009 N1H1 epidemic found that only 4% felt wearing a mask was a preventative measure (Kiviniemi et al., 2011). Yet research supports that wearing masks, along with distancing people a meter or more apart (the United States recommendation was 6 feet) can significantly limit disease transmission (Cowling et al., 2010; Lam et al., 2014).

For health communication to change behaviors, it must also be paired with individual actions. To present an image of oneself on social media wearing a mask is an act of performativity

(Deller & Tilton, 2015). Therefore, including mask selfies in social media posts about masking creates a deeper conversation around masks and mask making, as these photos are a visual symbol of personal response to the COVID-19 pandemic.

Methods

Population

To address our research question, the authors first completed in-depth interviews, each lasting 30-45 minutes, with 15 female mask-makers living in the greater Appalachian Region of the United States. Participants were 18 or older, made masks in relation to the COVID-19 pandemic, and lived in the Appalachian region, as defined by the Appalachian Regional Commission (Appalachian Regional Commission, 2021). The interview guide included questions about information sourcing regarding COVID-19 and masks, motivations for mask construction, the process of making masks, and mask promotion efforts and channels used, including social media. Topic areas and probing questions were developmentally influenced by the guiding literature concerning the topics of both women's self-efficacy and actions during times of crisis, as well as grassroots public health advocacy, particularly via social media. The goal of the interview guide was to examine the thought processes and communicated actions of the women who had been making masks (i.e., how did they process, view, and make meaning of their actions) and more pointedly, if and how they utilized social media in their efforts.

Appalachia, a mountainous area in the southeastern United States, was chosen as an area of focus for recruitment for multiple reasons. As a region, Appalachia has a high level of interrelated health challenges concerning access to health care, poverty, lack of health insurance and high rates of other health conditions like cancer, heart disease, and prescription drug abuse (Beatty et al., 2019; Behringer & Friedell, 2006; Cecelski, 1984; Appalachian Regional Commission, 2017; Oberhauser, 1995; Seitz, 1995). In addition, the virus impacted Appalachia later in the spread timeline. Though some participants had family members living in areas hit hard earlier on, this typically allowed for individuals in the region to observe changing circumstances both internationally and domestically and have some time to prepare and react before being directly affected by the virus. Finally, the Appalachian culture of self-sufficiency and "radical resourcefulness" (Porter & Richards, 2019) provided fertile ground for the study of mask making. Radical resourcefulness is defined as a "dramatic shift in use and reuse of materials," which became imperative during the pandemic since typical resources, such as surgical masks, were in short supply (Porter & Richards, 2019, p. 29).

Procedures

Following Institutional Review Board approval, participants were recruited through both the authors' social media posts and email referrals from regional health organization representatives working on the frontlines of the epidemic. Both authors shared this post on personal and university Facebook pages with the following request:

> Have you or has someone you know who lives in Appalachia been making homemade masks for use in the COVID-19 epidemic? (Authors) are working on a research study about the experiences of mask-makers to better understand perceptions of what has gone right and wrong in regard to homemade mask-making during this time.

The posts were made publicly shareable and reshared by each authors' social network as well as the social network of the university. Social media was a strong recruitment channel considering a focus of the study examined mask making as a discussion topic on social media channels. More details about the specific research opportunity were then provided and contact information was shared for interested participants to reach the authors through either Facebook Messenger or email. The same recruitment information was also shared through a regional health organization representative via email to several mask makers who made masks for healthcare workers. This study was part a multi-faceted qualitative study in which researchers interviewed 15 women and examined 9 of their social media accounts between March and August 2020.

All participants gave permission for the researchers to use their first names for the study. Interviews took place between late April and early May 2020 via Zoom. Interviews were autotranscripted through Zoom, then revised for accuracy by the authors.

After in-depth interviews, the authors completed a follow-up evaluation of nine participants' social media posts regarding masks between March and August 2020. Of these, 9 participants agreed to participate in the second stage of the research effort. Facebook was specifically targeted for this second stage of analysis because it was the social media platform most used across participants. This portion of the research study allowed the authors to investigate participants' behaviors in a social networking space as they navigated promotion of masks and increased understanding of how social media was used to achieve participants' communication goals. Participants were asked follow-up questions over email as needed. This use of in-depth interview transcripts, emails and social media posts thus created multiple data sources for content analysis, but the methodological approach for analysis utilized the same process.

Analysis

Using a combination of both the transcribed interviews, follow-up emails and social media records, the authors then completed a content analysis of all available materials using open and axial coding methods to identify themes and relationships (Glaser & Strauss, 1997). This approach allowed for inputs from different research collection methods (i.e., in-depth interviews, respondent emails and social media content analysis) to be combined. This use of multiple methods (triangulation) was employed as "a strategy that adds rigor, breadth complexity, richness, and depth to any inquiry" (Denzin, 2012, p. 82; Flick, 2007).

In coding, each author reviewed the materials at hand (i.e., interview videos/transcripts and social media posts, email correspondence) using inductive reasoning independently. All available materials were processed similarly as inputs for content analysis. Field notes were then completed including observations regarding possible themes and relationships, which were then coded and classified. Both authors reviewed the transcribed materials, emails and social posts word-by-word and line-by-line to first create field notes, which then evolved to open codes, and then related axial codes which, once thoroughly saturated, became our

thematic findings. The authors did not discuss their independent findings until specific checkpoints after 10 and 15 completed/analyzed interviews to ensure an independent interpretation was applied during the coding process. After completing ten interviews, we discussed our independent findings to learn that our thematic findings from content analysis had both high inter-coder reliability and had also begun to reach saturation. Upon completing fifteen interviews, we agreed that all found themes were comprehensive and sufficiently supported. We then aligned on final themes and rationale. Through this process, several consistent and interconnected findings achieved saturation, which will be discussed here.

Results

In analyzing our main research question, we approached it from several different angles. We considered how mask makers spoke about making masks, examined how they shared this on social media, and thought about how this might exhibit coping in the crisis.

The researchers found several themes present in the social media posts, interviews, and follow-up emails: addressing health information, sharing mask-specific information, direct mask sales, advocating for mask usage, sharing posts to affirm self-efficacy and identity, posting for resource fulfillment and sharing humorous statements and images.

Addressing health information

Throughout this study, researchers found that the changing guidelines encouraged participants to follow pandemic news closely both from official and unofficial sources. In the interviews, participants expressed frustration about changing guidelines. Many looked to the CDC and WHO for information and updates; however, little information was shared by these organizations regarding mask usage when the virus initially took hold in China. Many participants also said their initial impressions of mask wearing changed from March to April as more people realized masks could make a difference. One participant, Gwen, said she was inundated with messages about mask wearing in early April, but got concerned when she personally looked around her home and could not find even a scarf to wear when she went out:

> Gwen: You have to be under a rock someplace to not have heard that you should be wearing a mask. But you know, when I first heard that I looked around my house and I couldn't come up with absolutely a thing that I can wear as a mask. I was amazed since I didn't have material anymore...And I'm not a scarf person, so I didn't have [a] scarf. I didn't have anything. So, there's gonna be a lot of people out there that are in that same situation.

Gwen saw making masks as something she could do for herself and others to help them be more proactive concerning their health in the pandemic. Similarly, many of the participants saw the health messages they received (and in some cases, the lack of consistent messaging) as a motivator for not only wearing face coverings, but also providing them to others. Other participants were motivated to seek more information about masks and mask making when they saw people questioning health and safety information online. Many mentioned their

concerns that some people were sharing misinformation about masks, and the benefits of wearing a mask.

Sharing mask-specific information

Many participants heard about the crisis through their friends and family on social media, although some followed major health organizations and local and national news reports. Initially, major health organizations dismissed mask usage for those who were not sick themselves and/or not interacting with those who were sick. As a result, many participants felt differently about the purpose and function of masks early on- in fact, a few of them did not wear masks until their communities had mask orders. Eventually, the organizations recommended mask usage for broader disease prevention purposes and included homemade, cloth masks as part of their recommendations. Based on an evolving understanding of beneficial mask usage, several created masks for medical personnel, other essential workers (or people required to address the basic needs of a community like healthcare, public works, food service and municipal services), nursing home residents, and hospital patients. Many mask makers felt like the changing guidelines also created a foothold for divisiveness and politicization regarding masks. For some participants like Bonnie, this meant there were changes in the way people were reacting to her masks and social media posts about masks. She was glad to see many organizations make statements about mask wearing and hoped this would bring the number of "COVID clusters" down. She said in an email response:

> Bonnie: Just today, I heard that Walmart will require masks nation-wide. Hopefully the trend of stores requiring masks will continue to move the rest of the doubters, and hopefully if that happens, numbers of active cases will decline, and the data will reflect that- especially in communities where masks were required.

Mask Makers noted changes in their mask designs on social media as information regarding homemade masks was updated by the CDC and WHO. While some initially started with a two-layer cloth mask, many quickly began to add in a pocket for filtration, and/or a protective third layer of non-porous material such as polypropylene. They advertised these changes to assure those purchasing masks that they were following the latest guidelines available. For example, Sonny and Cara both specifically said they used social media and YouTube videos to discover what masks would be easiest to construct but many others mentioned video tutorials they saw on Facebook.

As mask mandates passed in cities across Appalachia, participants said they found themselves making more masks to meet the need, and some who originally offered masks for free asked for money to cover custom-made masks and or materials. There was a lot of adjusting of mask designs from when people started to make masks until August when this study concluded. For example, Gwen first got a pattern off YouTube but tweaked it to be her own because it was more challenging to make than she thought it should have been. Many of the women reused clothing remnants. Bonnie tried out different materials and harvested elastics from old clothes, Cara and Mandy tried different fabrics. After seeing information in

mid-July about the usefulness of filters, Lisa (Figure 1) started incorporating an additional layer instead of a filter pocket in early August.

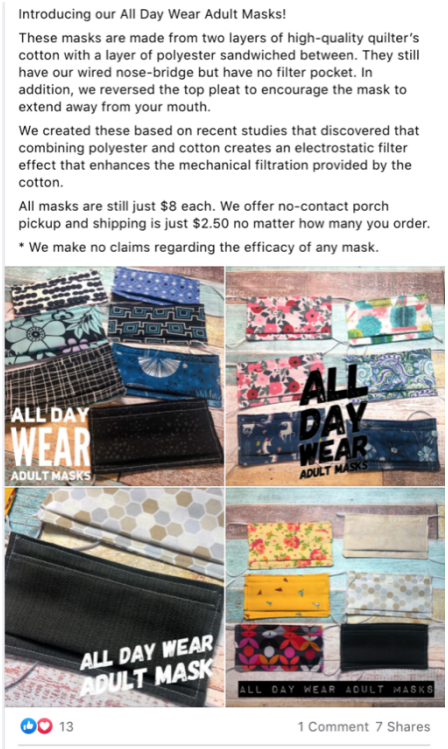

Figure 1

Leah developed her masks after she discovered her first pattern was essentially "half a mask" and she said she needed more layering as well as fabric that provided less air flow. All these challenges provided opportunities to rethink as well as adjust their craft. Many of these changes were made as guidelines and available information regarding mask efficacy evolved and new insight was discovered through social media because of social distancing policies.

Direct mask sales

Those who sold masks referenced a need to recoup their materials costs (and for some, also the cost of their time), as they were not in a financial position to provide masks for free. Mask makers used social media to directly promote and advertise their wares. Some who sold the masks (versus freely distributing them) even created separate websites apart from their personal pages to advertise mask sales and drive orders. Lisa said her business as a potter and providing bar-wear to restaurants dried up overnight and so she had a lot of time to make masks. She began selling masks through her dedicated online store.

Other participants stated that they posted about making or wearing masks when they observed others looking for masks. These women took orders through private messaging and posts. Some who donated masks also sold them to fund their donations (example shown in Figure 2). Leah shared her pictures alongside the promotions she was already doing for her vintage clothing and t-shirt business on local selling and community groups. She also

engaged in social media conversations with people who were looking to purchase masks or make them themselves:

> Leah: There have been people that have been like "Can anyone sell me masks?" And I'll go in and I'll comment like, "yeah, I have masks, you know, if you need them.

One of her posts was shared at least twice by people following her on her business's Facebook page, and she had an additional 27 reactions from followers. Leah did not post any mask photos after July but does list custom masks as an offering with her vintage clothing sale posts. She also said that although she was selling masks through her online store, she would gladly give them out to people who needed them.

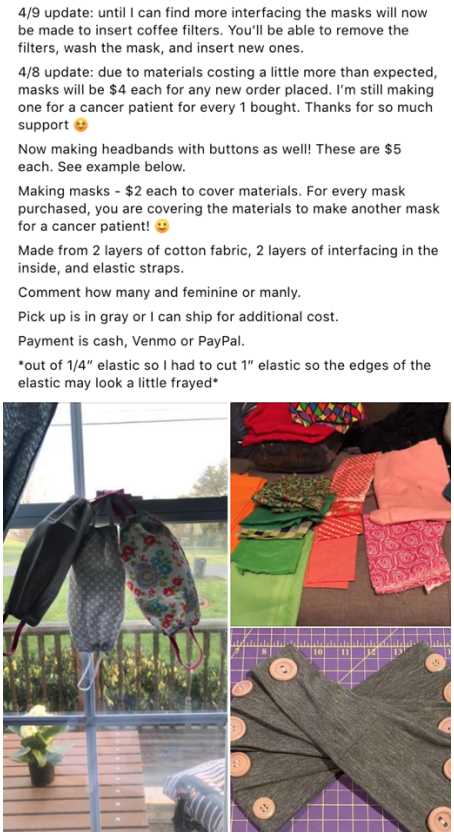

Figure 2

Mandy also said she had started to sell hers and got several reactions on social media from people who were angry and that she had lost "15 or so friends" over it. Her main purpose for sales was to recuperate the costs, but because people would see the price on her photos and posts they often jumped to conclusions about her intentions. Mask sales were typically not viewed as an entrepreneurial activity for personal or professional gain, rather participants used sales to fund mask making for increased community public health impact.

Advocating for mask usage

Social media provided a way for many mask makers to share pro-mask messages with friends and family, as well as other customers. Several mask makers used posts as a means of leveraging their social network with the goal of increasing broader mask adoption. This

advocacy piece was sometimes clearly stated by participants, “wear a mask,” or more indirect, “articles show that wearing a mask can help stop the spread of COVID-19.”

Cara, who also works with a small non-profit, already had an established network through several Facebook groups. Cara saw her mask making as an extension of work she was already doing through the non-profit to support those who were facing challenges in the greater region brought on by pre-existing inequities--including those with racial, economic, and social implications. While she was not sure if others were making masks because she was, she knew her network was becoming more aware of masks and prevention from the disease because of her social media posts.

> Cara: I've gotten a lot of engagement on the posts that I've put up and people asking, hey, how can I contribute, where can I put these, how can I get these to you. So, I've had masks left on my front doorstep, by people who want to contribute to the mask, mask revolution.

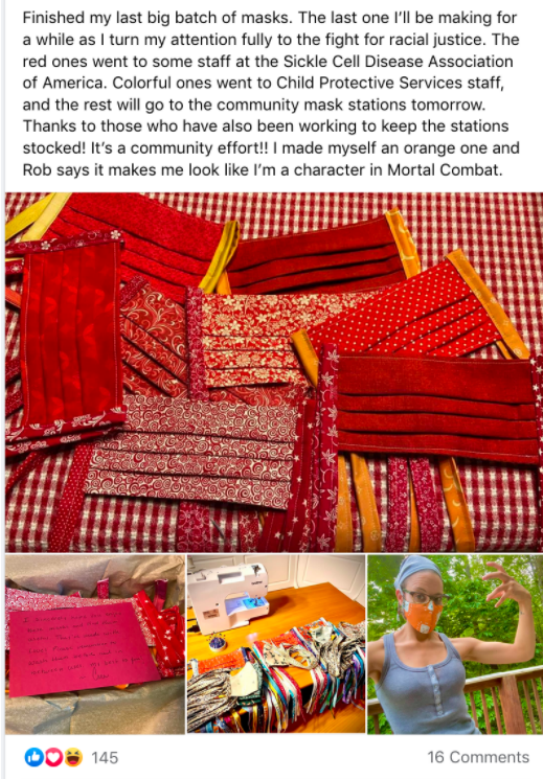

Figure 3

Mask makers also advocated for mask usage by showing their own masked faces. Several of those on social media used the platform to show masked selfies and images of masked friends and family. A couple of mask makers were not wearing masks during the time of the interviews, but later wore masks. Many of the mask makers were not leaving their homes and therefore were not wearing masks. Some supported mask wearing through sharing concerns and related content about the pandemic. For example, a couple of people shared public health data or messages from local hospitals about challenges they were facing for response. Some other participants contextualized the reasons for mask orders in their communities with hashtags like #maskup and links to local campaigns about mask wearing.

Several posted articles from national news organizations like *New York Times* that discussed mask wearing - with phrases like "Good info...short read!" Others posted local news articles. Many of their mask making efforts were featured in local news reports as well.

Sharing posts to affirm self-efficacy and identity

For some of the women, posting photos on social media about the masks they were providing gave them an added positive feeling about their actions. Tricia said, "basically everything I've ever said about making those masks is on my Facebook page." Similarly, Tricia said she felt like social media helped her to establish what type of response her family was taking regarding the disease, but also share what she felt to be acceptable and how her faith in God is shown through her actions. Others shared selfies of themselves in masks to show support and show off their craftswomanship.

Posting for resource fulfillment

In addition, people shared supplies with several of the participants and many of the women would tag those who shared supplies in the posts they wrote on social media and the photos they posted. Tricia spoke specifically of her use of found and donated materials as if magically the things she needed to make masks, like fabric, thread and elastic surfaced as she needed them. Others spoke of sourcing things from the community and then in return, sharing masks with nursing homes and in little free pantries.

Sharing humorous statements and images

In addition, many of the social media accounts used images with phrases to get the attention of their friends and potential customers. Many of these images contained humorous phrases like:

> "Took a Pandemic to get me to clean my sewing machine" (Gwen) with a photo of herself in one of the masks she made.
>
> "Well that Makes sense" "You wear a mask; I wear a mask, and no one gets peed on" (Tricia) in response to a meme she shared.
>
> A photo of T-shirt design "I can make masks, what's your superpower" (Sonny) with an image of Rosie the Riveter wearing a mask.
>
> "I mean, if you are going to let your phreak flag fly, the time to do it is when we're all masked, but you do you, Boo." (Lisa) in a promotional post about men wanting more plain masks to wear on her store Facebook site.
>
> Other pop culture references included a Hamilton (the musical) parody video from the Holderness Family (https://theholdernessfamily.com/).

While not all these posts included a call to action, many were humorous given the challenges of social distancing, and ever-changing health recommendations. Humor is also used in times of stress as a coping mechanism to discuss uncomfortable or polarizing topics (Yeo & McKasy, 2021). While none of the participants specifically pointed to humor as a coping mechanism, it nevertheless was reflected in their social media.

Discussion

This study took place in the initial onset and mitigation stages of crisis communication. During these phases, people adjust, and act based on "self-efficacy and reassurance" (Reynolds & Seeger, 2005). It also elicits understanding of how the sensemaking components discussed in CERC were practiced by individuals during the pandemic. As participants shared, they were empowered by making masks and sharing their mask making on social media. Self-efficacy has been linked to investment in a cause, and while not all the posters shared political views about masks, all of them were pro-mask making and valued mask making more as time passed. They used digital communication to share personal views and communicated actions, in efforts to establish more trustworthy information concerning the public health crisis of COVID-19.

The CERC theoretical framework for crisis communication recognizes participation in message assessment and meaning making as a way people assert their self-efficacy (Veil et al., 2008, p. 29). The women interviewed were consistent in their desire to seek out information and reassure their communities. In addition to assessing their risk, these women also worked to interact with and produce understanding about the risks of the pandemic (Weick et al., 2005). They also actively worked to privilege certain messages about masks that would provide reassurance to their online networks (Houston et al., 2015; Veil et al. 2008; Zhao et al., 2018). They gained more confidence in health messages over time as the CDC and WHO became clearer about the benefits of mask wearing– which resonates with recent findings about crisis self-efficacy and media messages (Ophir & Jamieson, 2020). The work these women did builds on a central recommendation in the third phase of CERC to empower the public to make decisions and coordinate response and recovery efforts, thus reducing the vulnerability of communities and individuals in crisis (Veil et al. 2008).

These findings provided an example of the public doing its own grassroots public health messaging. Often public health campaigns aim to reach smaller, and even segmented groups. In the case of many of the mask makers, social media enabled messages reached beyond their friends and family, extending reach to friends of friends and even strangers. The quick proliferation of news in the online world, helped them to adapt their lives in real-time as new information became available. At the onset of the pandemic, many mask makers found it helpful to share their views on masks consistently as the crisis progressed—even if they did not see the masks as 100 percent effective, the potential that masks could help was enough. As discussed in the literature, many public health campaigns of the past have been unable to couple enthusiasm and likelihood of risk in the way many of these current messages do (Austin et al., 2012; Osuch et al., 2012). While studies cited in this paper focused on health campaigns largely led by established health non-profits or hospitals, most of our participants were not already connected to health advocacy groups. Participants were able to engage with online health campaigns even when they were at home (i.e., participants tagged #maskup, #wearamask), and dropped off masks at local hospitals, food pantries and on front doorsteps. Efforts to share a personalized story often made mask maker's social media connections reshare their posts, request masks, scavenge their homes for materials to contribute, and provide money for supplies.

Effective public health messaging should both inform as well as influence the public to take actions, as well as motivate people to change their behaviors and create dialogue about the health issue at hand (Schiavo, 2014). Therefore, these social media messages might fit the

parameters of a successful public health grassroots communication effort. The difference is that rather than a hospital or organization confirming the practice for individuals, individuals are communicating about what they are doing to conform to the recommendations of public health officials. This reversal has become increasingly common with social media communication, but rarely starts from the bottom up, as it has with many mask makers. Similarly, the CERC model often examines organizations rather than individuals' reactions to messages (Reynolds & Seeger, 2005).

The role of women in crisis is one that has not been widely studied regarding pandemics, although in many studies, women have been found to be more proactive when it comes to crisis response (Aldoory, 2001; Perreault et al., 2014). In this study, the women were connected to their social networks, those in their community, and the needs of strangers. Many of these women used mask making as a conduit to share information about their concerns for public health. Participants also shared photos of their masks and selfies as representations of what they stood for. This idea aligns with the advocacy literature and observations of how individuals assessed their health risks. The sharing of mask-related posts signified the potential susceptibility, severity, and threat of the pandemic without directly discussing risk, severity or threat and translates those assessments into beliefs and potentially, actions (Rosenstock, 1960; Skinner et al., 2015). While the challenges in responding to a novel virus did influence their initial confidence in both mask making and in communicating their actions in social media, overtime, the participants became more confident in their mask making skills as well as their ability to motivate friends and family to follow certain public health guidelines.

Limitations

All studies have limitations, and this study is no different. Several of the participants voiced concerns for economic turmoil and inequality through social media and interviews, which may have influenced their risk perceptions. Relatedly, a portion of them continued to work outside the home during the crisis to make money to support themselves and their families, and therefore may have had heightened risk factors which shaped their responses. As movements to reopen businesses and schools increased in volume, many of the mask makers changed what they posted to social media. In addition, tangential events, such as the death of George Floyd and the #blacklivesmatter protests movement, erupted on social media during the same time frame as this study and presented challenges in understanding the complexities of political perspectives from participants.

While the participants were from a variety of ages and stages of life, only two participants represented minority groups. In addition, they were not asked about their specific ages or education level, outside of verifying they were 18 or older for participation. We did not ask them to share their political views, racial concerns, or economic concerns so the information we gathered was purely offered by the participants as they wished to offer it. Finally, our study only sought to understand the first few months of the pandemic, which was intentional but necessarily limits the understanding we gained from the sample in the context of a more than 2-year pandemic event.

Conclusions

Messaging by individuals in crisis has potential for changing the way people think about disease risk reduction and their associated behaviors. This study connected social media advocacy with the CERC model of crisis communication by addressing individual actions in the second phase of CERC as a way to reduce uncertainty and build self-efficacy (Reynolds & Seeger, 2005). In the past, CERC has been applied to government health organizations and mass media, but not individuals. For many of these women, making masks and showing others they were making and wearing masks, was a way they could apply self-efficacy and cope during crisis, and communicate disease risk reduction actions to their communities in a tangible and relatable way.

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VOLUME 2, ISSUE 1, 2023