Humor-Based COVID-19 Twitter Accounts

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ABSTRACT

Crisis Named Resources (or CNRs) are social media pages and accounts named after a crisis event. Using the COVID-19 Pandemic as a case study, we identified and examined the role of CNRs that shared humor on Twitter. Our analyses showed that humor-based CNRs shared virus-related rumors, stigma, safety measures, opinions, sarcasm, and news updates. These resources also shared the overall anger and frustration over the year 2020. We conclude by discussing the critical role of humor based CNRs in crisis response.

Keywords

COVID-19, Twitter, Humor, Crisis Named Resources.

INTRODUCTION

Social media platforms are increasingly becoming an integral part of our everyday lives. People often use social media platforms to express their emotions and opinions about different events, including crisis events. One-way people communicate on social media during crisis events is by creating Crisis Named Resources (or CNRs). CNRs are social media pages and accounts named after a crisis event. Such resources are created shortly after a crisis event occurs and play an active role in the crisis response. They are used for sharing crisis-related updates, asking for and offering help, organizing donations and fundraising events, sending prayers and messages of hope, and expressing opinions on the handling of a crisis event. Since these resources are named after an ongoing crisis event, they also receive a great amount of user engagement (measured in terms of number of follows, likes, shares, or retweets) in a relatively short period of time (Chauhan and Hughes 2018, 2020, 2021).

In this study, we examined the CNRs created on Twitter during the COVID-19 Pandemic. COVID-19 was declared a pandemic on March 11th, 2020 (WHO 2020a). The COVID-19 Pandemic brought a unique set of challenges for governments, healthcare, and crisis response agencies. It affected people worldwide. Plus, it took health professionals and scientists a while to understand the nature of the virus, how deadly it is, who the vulnerable populations are, how fast it will transmit, and how we can stop or slow down the spread of this virus. All of which resulted in an unprecedented amount of never-ending anxiety and uncertainty. Once scientists developed some understanding about the virus, several measures, such as, masks, physical distancing, and home-confinement were enforced to slow down the speed of transmission of the virus (Al Jazeera, News Agencies 2020). Though these measures proved beneficial in flattening the curve (WHO 2020a), they also led to an increase in psychiatric illnesses, such as anxiety, depression, insomnia, and stress (Hyland et al. 2020; Nuñez Zarazu et al. 2022; Rossi et al. 2020).

Past research studies have proved humor to be one of the coping mechanisms that has therapeutic effects and can reduce stress and anxiety during crisis events (Church 2017; Wang et al. 2021). This work contributes to the *crisis informatics* body of research (Palen et al. 2009), which aims to understand the use of Information and Communication Technologies during crisis events. This work also expands upon the existing research on CNRs, where we specifically contribute by examining the role of humor-based CNRs on Twitter during the initial months of the pandemic and their impact during a crisis event.

Our research enquiries are as follows:

- When were the humor-based COVID-19 CNRs created and how were they received by members of the public on Twitter?

- What did humor-based COVID-19 CNRs on Twitter share?

BACKGROUND

Crisis Named Resources

Members of the public use social media for sharing information, asking for and offering help, and showing solidarity during crisis events (Reuter et al. 2018). They often create dedicated venues, such as CNRs to communicate during a crisis event (Chauhan and Hughes 2020). CNRs play an active role in crisis response efforts by disseminating information, offering help (e.g., donations or fundraisers), facilitating discussions around how a crisis event is handled, and allowing people to share their crisis-related experiences (Chauhan and Hughes 2018). Researchers in the past have studied CNRs to determine their contribution during a crisis event (Bird et al. 2012; Chauhan and Hughes 2017, 2018; Shklovski et al. 2008) and the perceived trustworthiness of these contributions (Chauhan and Hughes 2020). All these studies have focused on the role of CNRs around information dissemination during crisis events and have called for further monitoring of these resources for potential spread of misinformation. None of these studies have, however, analyzed humor (an effective method to cope with uncertainty and anxiety) shared by these resources. We, therefore, seek to fill this knowledge gap by analyzing COVID-19 CNRs that claimed to share humor during the pandemic.

Humor during Crisis Events

Humor is "anything that people say or do that is perceived as funny and tends to make others laugh, as well as, the mental processes that go into both creating and perceiving such an amusing stimulus, and also the affective response involved in the enjoyment of it (Rutchick 2013)." Prior research has reported the existence of parody social media accounts and the use of humor around crisis events, such as, 9/11 terrorist attack, 2017 Hurricane Harvey, and 2019 Hurricane Irma (Achter 2008; Chauhan and Hughes 2020; Church 2017; He et al. 2016; Wan et al. 2015). One of the research studies has specifically showed that memes shared during a crisis event not only help people manage the emotional stress generated by the crisis event, but also help them mediate social, political, and religious criticisms (Church 2017). We continue to build on the existing research by analyzing the role of humor-based CNRs created during the COVID-19 Pandemic and determining the underlying intentions behind these Twitter accounts.

COVID-19 Pandemic

COVID-19 is a disease caused by a novel coronavirus SARS-CoV-2 (Fauci et al. 2020). The World Health Organization (or WHO) declared COVID-19 outbreak as a pandemic on March 11, 2020 (Al Jazeera, News Agencies 2020). As of February 2023, COVID–19 has infected more than 673 million people and has claimed more than 6 million lives worldwide, with most number of cases in the United States ("Coronavirus (COVID-19)" 2023). Soon after the declaration of pandemic, several measures, including travel restrictions, workplace and school closures, lockdowns, and mass home-confinement directives (such as stay-at-home orders, quarantine, and isolation) have been enforced to curb virus transmission (Al Jazeera, News Agencies 2020). Though these measures proved to be useful in reducing the transmission of the virus, they also resulted in increased emotional distress and psychiatric illnesses (Hyland et al. 2020). For instance, a web-based survey conducted on the Italian general population three to four weeks into lockdown measures revealed that pandemic has caused relatively high rates of Post-Traumatic Stress Symptoms, depression, anxiety, insomnia, perceived stress, and Adjustment Disorder Symptoms (Rossi et al. 2020). Since humor is acknowledged as one of the coping mechanisms to reduce tension and anxiety (Wan et al.2002; Martin et al. 1993; Wanzer et al. 2005), we specifically identified humor-based COVID-19 CNRs and investigated their roles in crisis response.

DATA COLLECTION

We started our data collection by searching for COVID-19 CNRs on Twitter and narrowed down to Twitter accounts, whose name had the keyword- 'Coronavirus (or COVID-19) memes.' This resulted in 28 Twitter accounts. For each identified Twitter account, we recorded its name, handle, bio, location, date joined, number of tweets, number of following, number of followers, and whether it had a profile picture, cover picture, and a blue-colored checkmark verification sign. Using Vicinitas[1] website, for all 28 Twitter CNRs, we captured tweets, type (tweets, retweets, and replies), date created, likes, retweets, URLs, hashtags, mentions, media type (GIFs, videos,

[1] https://www.vicinitas.io/free-tools/download-user-tweets

and photos), and media URLs.

We revisited these 28 Twitter accounts a year later and found that three of the accounts no longer exist. We removed all the data collected from deleted Twitter accounts to honor the CNR owners' decision to delete their accounts. We also excluded one Twitter account that later changed its name to something unrelated to COVID-19 and nine Twitter accounts that were created before year 2020 (i.e., before the pandemic) from our analysis as these accounts did not fit the criteria of CNRs. Finally, we also excluded four Twitter accounts, whose owners posted tweets in languages other than English as none of the authors were familiar with those languages. In total, we analyzed a total of 1,456 tweets from 11 Twitter accounts.

FINDINGS

We report our findings in two sections. The first section gives an overview of humor-based COVID-19 CNRs-their profile information, creation date, popularity, activity, and owners. The second section describes the types of information humor based CNRs shared during the COVID-19 Pandemic.

Overview of Humor Based COVID-19 Crisis Named Resources

All CNRs in our dataset had a COVID-19 related profile picture and an account bio or description (see Table 1). Majority of the CNRs (63.6%) also had a COVID-19 related cover picture (see Table 1). None of the CNRs in our dataset were verified Twitter accounts (Table 1).

Table 1. CNRs' Attributes (Captured on June 07, 2020)

Crisis Named Resources Attributes	Twitter (N = 11)
COVID-19 related Profile Picture	11 (100.0%)
COVID-19 related Cover Picture	7 (63.6%)
Account Description	11 (100.0%)
Verification Sign	0 (0.0%)

Two CNRs (18.2%) were created in February 2020 and the other (81.8%) nine CNRs were created in March 2020 (see Table 2). This finding is consistent with the past studies that showed that CNRs appear soon after a crisis event occurs (Bird et al. 2012; Chauhan and Hughes 2017, 2018, 2020; Shklovski et al. 2008).

Table 2. Number of Humor Based CNRs Created per Month

	February 2020	March 2020
Twitter (N = 11)	2 (18.2%)	9 (81.8%)

Majority of the CNRs (72.7%) in our dataset had followers in the range 10 – 999. Two CNRs also had more than 10,000 followers (see Table 3). The most popular CNR was created in March 2020. It had 17,600 followers and 197 tweets. The profile picture of this CNR shows a bottle of Corona beer (a popular beer produced by a Mexican brewery). The second most popular CNR was also created in March 2020. It had 12,000 followers and 96 tweets. The profile picture of this CNR has the "Dunder Mifflin Paper Company, Inc." logo and its cover picture shows the starring cast of a popular American sitcom, 'The Office.' The purpose of this CNRs was to wonder what 'The Office' episodes would look like if they were recreated during COVID-19.

Majority of the CNRs (90.9%) in our dataset had tweets in the range 10 – 999 (see Table 4). Most active CNR had 681 tweets and was created in March 2020. All tweets were sarcastic (pointing to the inactions and the wrong actions that led to the widespread of the virus) and were written in the first person, as if COVID-19 itself had created the account. Researchers in the past have also reported a similar Twitter account created during the 2017 Hurricane Irma (Chauhan and Hughes 2020).

Finally, none of the CNR owners in our dataset explicitly revealed their identities. One of the CNRs in our dataset referred to a Twitter account in its account description, we suspect that either this Twitter account belongs to the creator of this CNR or this CNR was giving this Twitter account credit for inspiration/ideas. One CNR in our dataset also provided its location (Vancouver, British Columbia). None of the CNR owners mentioned the sources of their content in their account description or tweets.

Table 3. Popularity of Humor Based CNRs (Captured on June 07, 2020)

Number of Followers	Twitter (N = 11)
No Followers (0)	0 (0.0%)
Single Digit Followers (1 – 9)	1 (9.1%)
Two Digit Followers (10 – 99)	3 (27.3%)
Three Digit Followers (100 – 999)	5 (45.4%)
Four Digit Followers (1,000 – 9,999)	0 (0.0%)
Five Digit Followers (10,000 – 99,0000)	2 (18.2%)

Table 4. Activity of Humor Based CNRs (Captured on June 07, 2020)

Number of Tweets	Twitter (N = 11)
No Tweets (0)	0 (0.0%)
Single Digit Tweets (1 – 9)	1 (9.1%)
Two Digit Tweets (10 – 99)	5 (45.45%)
Three Digit Tweets (100 – 999)	5 (45.45%)

Humor Based COVID-19 Crisis Named Resources

We conducted a thematic analysis on all the tweets by using iterative coding process. All tweets were coded using our codebook, and a tweet was categorized in one or more categories. Our analyses revealed that humor based COVID-19 CNRs shared the following types of information-

- Rumors about the origin and the transmission of the virus.
- Stigma around the virus.
- Public reactions to the COVID-19 safety measures.
- Opinions about the handling of the virus.
- Sarcasm, boasting about the virus abilities and thanking people for their inactions and wrong actions.
- Anger and frustration over the year 2020.
- News and updates about the virus.

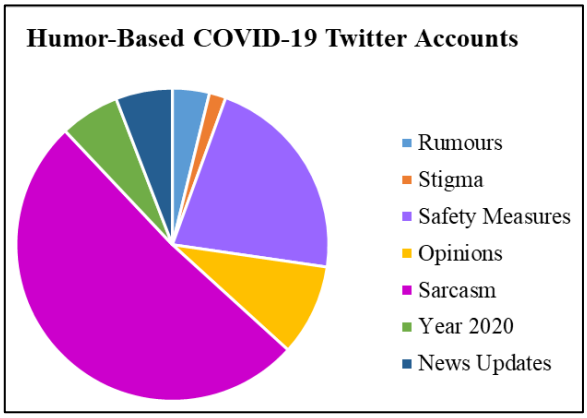

Figure 1. Humor-based COVID-19 Twitter accounts shared rumors, stigma, safety measures, opinions, sarcasm, news updates, and anger and frustration over the year 2020.

Figure 1 shows that majority of the tweets in our dataset were related to sarcasm (51.2%), followed by safety measures (21.7%), opinions (9.5%), anger and frustration over the year 2020 (6.2%), news updates about the virus (5.9%), rumors (3.8%), and stigma (1.7%). A small number of tweets (157) did not belong to either of the above categories as they were either deleted or were unrelated to the pandemic (for example, tweets related to the US elections, black lives matter, I stand with Greece, missing Kim Jong Un, etc.). These tweets were excluded from the analyses.

Rumors

Rumor is defined as the "unverified information that can be found as true, fabricated, or entirely false after verification (Islam et al. 2020)." We found that 49 tweets (3.8%) in our dataset were rumors about the origin and the transmission of the virus. Figure 2 shows some examples of memes which illustrated how the virus might have originated from bat soup, Corona beer, or 5G technology. This finding aligns with one of the prior studies which showed that people shared vast amounts of rumors and speculations about the virus origin, transmission, mortality, control interventions, and cure during the initial months of the pandemic (Islam et al. 2020).

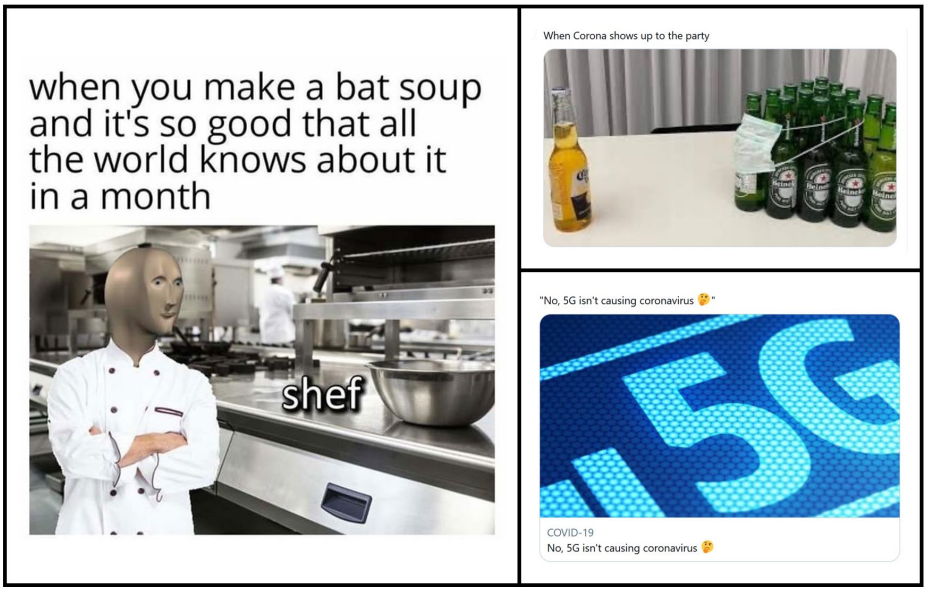

Figure 2. Tweets that shared rumors about how the COVID-19 virus may have originated from consuming bat soup (left), drinking corona beer (top right), or using 5G technology (bottom right).

Stigma

Stigma is a "socially constructed phenomenon through which a person is directly or indirectly labeled by their illness, exposures, travel history, and ethnic descents that further led to negative actions and discrimination (Islam et al. 2020)." Since the first few cases of COVID-19 virus were reported in the city of Wuhan in Hubei province of China, some people initially referred to the virus as the "China virus" or "Chinese Virus." The term "Chinese Virus" gained huge popularity after the US President Trump, referred to COVID-19 as the "Chinese Virus" on Twitter (Budhwani and Sun 2020). One of the popular conspiracy theories around the initial months of the pandemic also suggested that the novel coronavirus was engineered and was either accidently or deliberately released in the Wuhan seafood market (Islam et al. 2020). The frequent use of the term "Chinese virus" and the theories about the virus being engineered in a Chinese laboratory resulted in stigma against people of Chinese origin. Our dataset contains 22 stigma-related tweets (1.7%). Figure 3 (left) shows an example illustration of how humor was used for inciting fear towards Chinese. Figure 3 (right) shows an example illustration of theories suggesting how COVID-19 affected Chinese intentionally travelled around the world to spread the virus.

Figure 3. Tweets that shared stigma towards people of Chinese origin by inciting fear (left) and sharing theories about how COVID-19 affected Chinese purposely spread the virus (right).

Safety Measures

To curb the spread of the virus, several protective measures were enforced around the globe. We noticed a large number of memes around these safety measures.

Practice Good Hygiene. To reduce COVID-19 transmissions, the WHO urged people to practice good hygiene, such as washing hands with soap and water for at least 20 seconds, using an alcohol-based hand sanitizer, and coughing and sneezing into a tissue (WHO 2020c). Figure 4 shows example memes related to frequent handwashing and the use of sanitizer.

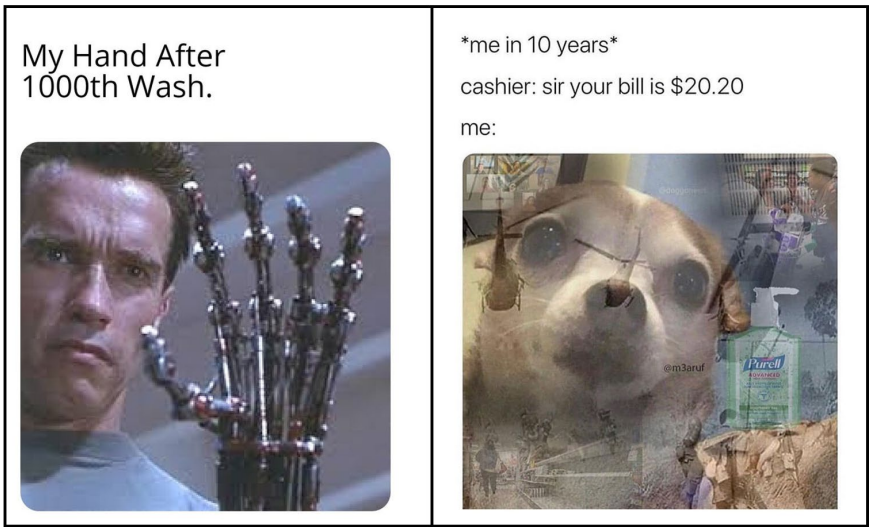

Figure 4. Tweets that shared humor about frequent handwashing (left) and the use of hand sanitizers (right).

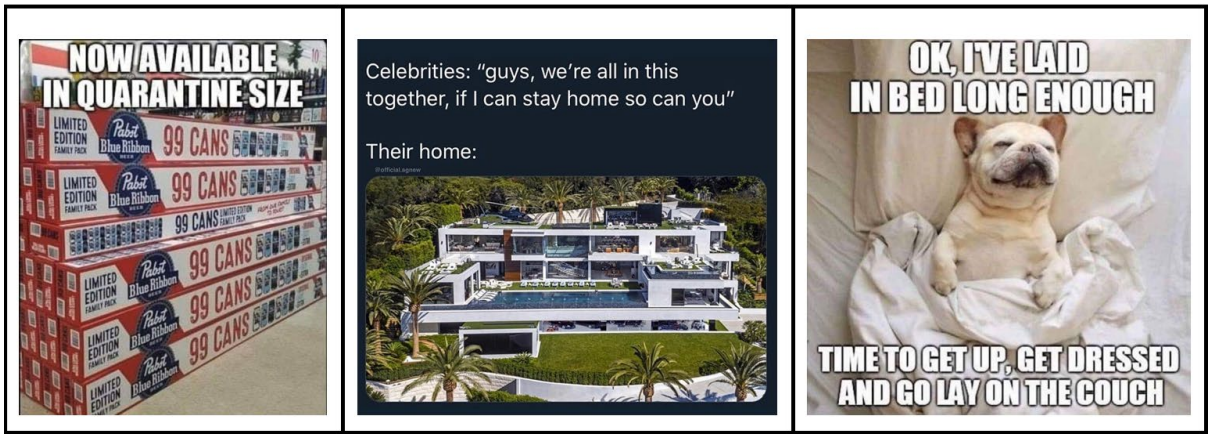

Figure 5. Tweets that showed how stores introduced large sized products (left), celebrities' stay-at-home experiences were different than members of the public (center) and how some people had nothing to do during lockdowns.

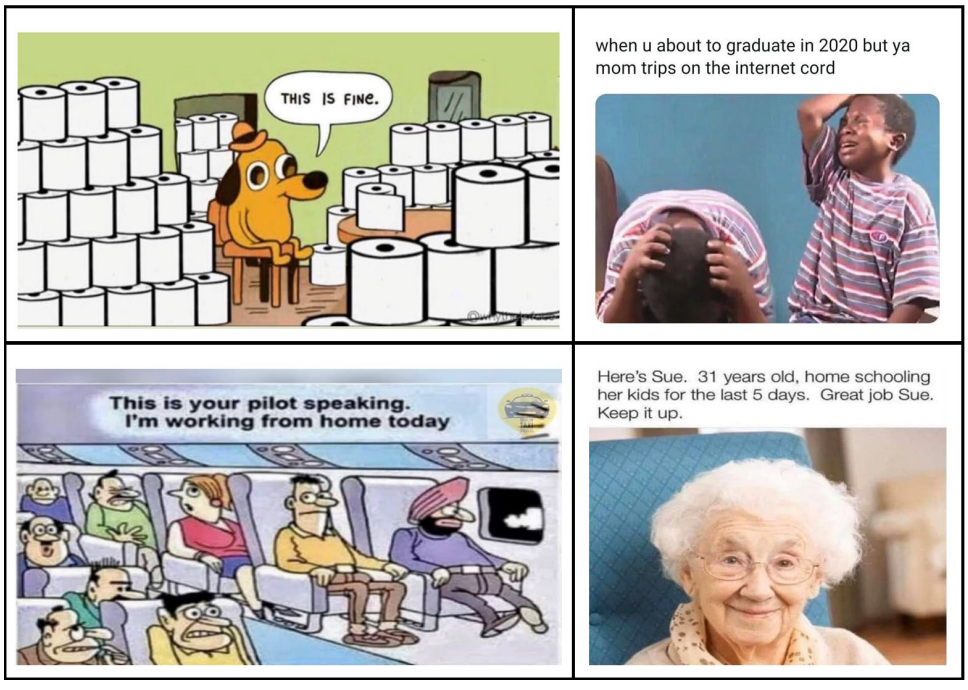

Figure 6. Tweets that illustrated panic buying (top left), celebration of events over the Internet (top right), work-from-home culture (bottom left), and the challenges of home-schooling (bottom right)) during lockdowns.

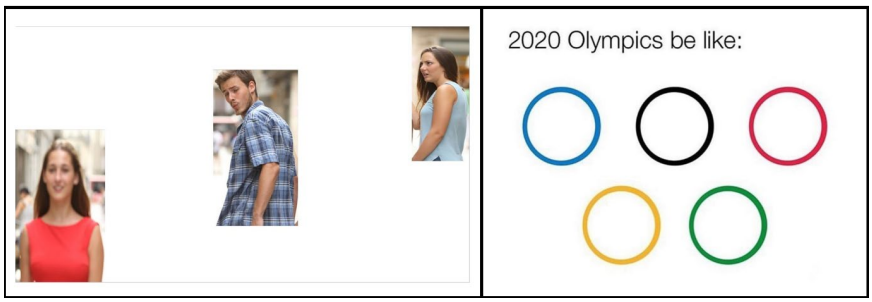

Figure 7. Tweets that creatively illustrated the concept of physical distancing.

Figure 8. Tweets that reflected on the humor about how people came up with strange face covering ideas during the shortage of masks.

Home Confinement. Several countries enforced home-confinement measures, including quarantine, isolation, lockdown, curfew, and travel restrictions to reduce the transmission of the virus (Al Jazeera, News Agencies 2020). Figure 5 shows examples of home confinement related humor shared by the COVID-19 CNRs on Twitter. Examples shown in Figure 6 also reflect on some of the trends (for example, panic buying and virtual celebrations) and challenges (for example, work-from-home and home schooling) of the initial months of the pandemic.

Physical Distancing. One of the most effective measures taken to reduce the speed of transmission of the virus was the enforcement of physical distancing (keeping 2-metres distance with people who are outside your household) (WHO 2020c). Figure 7 shows examples of humor around physical distancing.

Mask or face covering. Another COVID-19 protective measure was the use of face coverings, where people were asked to cover their nose, mouth, and chin by wearing a fabric or a surgical mask (WHO 2020c). Examples shown in Figure 8 reflect on the overall shortage of masks during the initial months of the pandemic (WHO 2020b), which in turn forced people to think of creative ideas to cover their face.

Opinions

The COVID-19 Pandemic affected people worldwide. Different countries adopted different approaches to handle the pandemic. While some countries enforced very strict measures to combat the virus, other countries chose not to (or were very slow to) adopt strict safety measures. Similarly, while some countries promptly developed the COVID-19 test kits and began rapid mass testing, other countries were doing little to no testing. The differences in handling of the virus led to an increase in speculations, conspiracy theories, and opinions about different countries and governments. Figure 9 shows some examples of opinions shared during the pandemic.

Figure 9. Tweets that shared opinions about the handling of the virus in the different parts of the world.

Sarcasm

Our dataset also consists of tweets that shared sarcastic views on the transmission of the virus. A Twitter accounts that wrote in the first person (as the COVID-19 virus) shared sarcastic tweets that ridiculed politicians, governments, countries, and members of the public for their inactions and wrong actions during the pandemic (see Figure 10). Most tweets (51.2%) in our dataset shared sarcasm.

Figure 10. A humor-based COVID-19 Twitter account that shared sarcasm on the inactions and the wrong actions related to the handling of the virus.

The year 2020

Humor-based COVID-19 named resources on Twitter also shared the anger and frustration over the year 2020. Figure 11 shows examples of how people in the future would reflect back on the year 2020 or how a time traveler would feel if they ended up in the year 2020.

Figure 11. Tweets that shared the anger and frustrations over the year 2020.

News Updates

Some tweets (6.2%) in our dataset were related to news updates (such as, number of cases, deaths, and recoveries) around the virus. Though these tweets were shared from the humor-based accounts, they did not include any kind of humor (Figure 12).

Figure 12. Tweets that shared COVID-19 related news updates.

DISCUSSION

In this paper, we identified and investigated Humor-based COVID-19 CNRs. The most popular CNR (with 17,600 followers) and the most active CNR (681 tweets) were created in March 2020, soon after the declaration of the pandemic. Humor-based COVID-19 CNRs played an active role in crisis response and shared humor around theories about the origin of the virus, stigma, safety measures, opinions, sarcasm, the anger and frustration over the year 2020. In most cases, they used jokes, memes, funny videos, and sarcasm to express their opinions.

Crisis-related Humor – good or bad?

Crisis-related jokes and memes need careful investigation, whether they are good or bad it all depends on the context of the post. Below, we share our insights on the positive and the negative sides of crisis related memes.

The Positive Side of Crisis-related Humor. COVID-19 Pandemic brought unique challenges, where people were instructed to stay at home (instead of being asked to evacuate or find a shelter). Many people at that time were living alone or were away from their loved ones. Plus, during the initial weeks of the pandemic, there was a very limited scientific knowledge about the origin and spread of virus. All this led to huge amount of uncertainty and anxiety about the longevity of the event. People were concerned if they would ever be able to see or meet their loved ones, if they would be paid during lockdowns, if they would have enough money and resources in case they were affected by the virus. In times where following COVID-19 statistics would further aggravate the anxiety; humor was a good alternative. Some of these memes were successful in generating laughter, which gave people a moment of relief during difficult times. These memes also offered a sense of solidarity, for example, they successfully captured how others were also dealing with mask shortages (see Figure 8), struggling with home schooling (see Figure 6), and feeling disappointed with the year 2020 (see Figure 11).

The Negative Side of Crisis-related Humor. Just like any other types of accounts or posts, humor-based accounts or tweets can also be politically, financially, or demographically biased. Humor can also be intentionally or unintentionally designed to share false, partly false, or manipulated information, which in turn can incite anger, hate, or prejudice (see examples of stigma (Figure 3) and opinions (Figure 9)). Humor is particularly interesting as social media users might like or share posts from Humor-based accounts for laughter, where in reality they might be unconsciously contributing in amplifying a propaganda. Another interesting aspect of humor is that everyone is not capable of differentiating satire versus fact, for example our dataset includes examples, where the same account shared humor, sarcasm, and news updates over time. Hence, someone might look at Figure 9 and conclude that Bangladesh is doing a poor job of testing, which could be true, partly true, or part of a propaganda.

Implications for ISCRAM Researchers and Practitioners

This study has showed that while humor-based accounts are good at generating laughter, they also have potential to amplify misinformation or disinformation. Timely and accurate information is of great asset during crisis situations, and a humor shared during a crisis event gone wrong can risk lives. For example, in an event of mass shooting, if someone makes a funny meme that the gun violence was a result of organized crime executed by a particular political party or a religious group. If the post gets viral, it may lead to unnecessary anger, stigma, or

chaos. Hence, as ISCRAM researchers and practitioners, we should not take humor-based accounts lightly and should carefully investigate them with the same lens as we would investigate any other social media accounts.

Limitations

This study reports on the data collected in June 2020. It therefore only reflects upon the chaos of the initial months of the pandemic- the time when people were concerned about the origin and the transmission of the virus and were getting acclimatized to the new normal (masks, physical distancing, and home-confinement). If the study included all the data since the pandemic was declared, it could have also captured events like vaccine rollout, vaccine hesitancy, economic crisis, supply chain issues, new variants of the virus, and so on.

CONCLUSION

This study examines the humor-based COVID-19 CNRs on Twitter. Findings reveal that humor-based COVID-19 resources were created soon after the event and shared myths, stigma, safety measures, opinions, sarcasm, news updates, and anger and frustration over the year 2020. This study expands upon the existing research on CNRs by exploring the role of humor-based accounts during a crisis event.

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