

Tweeting Through COVID-19: A Content Analysis of Twitter Posts During the Pandemic

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Abstract

This study assessed public sentiments regarding the COVID-19 pandemic through a content analysis of 100 Twitter posts made on March 31, 2020, following the introduction of gathering restrictions and social distancing measures. This analysis identified nine themes, including (in order of prevalence): self-isolation activities, reactions to government actions, humour, prevention, emotion, positivity, mental health, statistics, and personal experiences. The most common themes found were related to how people were spending their time in self-isolation (21% of posts analyzed) and reactions to steps taken by various levels of governments (19% of posts). The results demonstrated, overall, an optimistic outlook among a sample of Twitter users towards the COVID-19 pandemic, a sense of solidarity, and a willingness of these users to observe measures to try and stop the spread of the virus.

Introduction

The Coronavirus Disease (COVID-19) is a global pandemic that has created a dramatic shift in social organization. With increasing social and physical distancing measures, more individuals are taking to social media platforms to express their thoughts about COVID-19 and the effect it is having on their everyday lives. In the aftermath of past global health crises, such as H1N1 and Ebola, researchers have examined the recurring themes and patterns in social media posts made about those diseases (e.g., Ahmed, Bath, Scaffi, & Demartini, 2019; Seltzer, Jean, Kramer-Golinkoff, Asch, & Merchant, 2015). This existing research will provide a strong foundation for some of the patterns and themes which this study discusses.

For example, Ahmed et al. (2019) explored Twitter as a means to study health and other related content at the peak of a significant health event. This research felt that content posted to Twitter provided a rich data source, and that the analysis of patterns in these tweets could provide valuable understanding of public reactions and thoughts in regard to major events such as epidemics and pandemics (Ahmed et al., 2019, p. 61). Qualitative analysis of tweets was conducted at the height of the H1N1 epidemic, and they were coded

based on their primary themes (Ahmed et al., 2019, p. 63). This study further assessed how this information, and the methods used in the study, could be used by practitioners and health researchers to gain insight into the discourses that surround infectious disease outbreaks (Ahmed et al., 2019, p. 68).

The content analysis conducted by Seltzer, et al. (2015) specifically considered the themes present in images posted to social media sites during the most recent Ebola outbreak, acknowledging the role that the sharing of images now plays in the world of social media (Seltzer et al., 2015, p. 1274). This research also found that a great deal of information during the Ebola outbreak was exchanged over social media, and concluded that social media platforms provided both an opportunity to gain insight into knowledge, feelings, thoughts and behaviours as well as being a means to communicate health information during major events (Seltzer et al., 2015, p. 1277).

Even since H1N1 and Ebola, social media use has become increasingly prevalent, and COVID-19 has had an unprecedented impact on the world. The present study builds upon this past research to gain a better understanding of the effects and public perception of the COVID-19 pandemic, based upon an analysis of the

themes found in both text and image posts on Twitter to better understand what the attitudes and sentiments of Albertans are towards the COVID-19 pandemic, and related measures.

Method

Sample

The sample consisted of posts made on Twitter on March 31, 2020, which directly related to the COVID-19 pandemic. Twitter was chosen because of its popularity as a social media network, and the public availability of tweets. Due to the evolving, day-to-day nature of the COVID-19 pandemic, and to limit the number of search results, a single date was chosen. This date (March 31, 2020) was two weeks after the implementation of social distancing measures and large-scale closures of schools and businesses, meaning that Twitter users were likely experiencing the pandemic personally, in some way, at this time.

Sample Selection

To obtain the desired sample, an advanced search was conducted on Twitter looking for posts that included the keywords *COVID*, *coronavirus*, *isolation*, or *quarantine*. These search results were limited to English language posts and original tweets (not replies). The resulting tweets were further filtered to include only posts by users who were located in or near Edmonton, Alberta and then sorted based upon how recently they were made. The most recent posts which reflected the thoughts and experiences of individual users during the ongoing COVID-19 pandemic were selected until a sample size of 100 was reached.

Inclusion and Exclusion Criteria

This study sought to understand the attitudes and sentiments of Twitter users during the COVID-19 pandemic. As such, it excluded postings by news agencies, professional tweets (including those by businesses, organizations, or political parties), or news articles that were shared without any additional, unique content from the Twitter user who had shared them. Posts that appeared in the search result but were not directly related to COVID-19, where a keyword may have been part of the username or used in an unrelated context, were also excluded. COVID-19 related news

articles shared by independent users with additional commentary were included in the study, as they reflected the thoughts of those users.

Procedure

Twitter posts were examined for their content, including text, images, and links to determine the dominant themes or ideas expressed. All posts, beginning with the most recent, were labelled by theme until a sample size of 100 suitable tweets had been obtained. The resulting list of specific themes found in these posts was further grouped and combined where appropriate, such as the combination of hand washing, social distancing and stay-at-home suggestions into the category of prevention. The sample was subsequently revisited and coded into the revised theme categories.

Results

Twitter users in Alberta posted a wide variety of content related to COVID-19 and isolation or quarantine measures being taken. Initial analysis of the sample indicated a vast array of themes found in Twitter posts about the pandemic. These themes were grouped into the following, more general categories: activities while self-isolating, reactions to government actions, humour, prevention, emotion, positivity, mental health, statistics, and personal experiences.

Self-isolation activities consisted of tweets which referred to how users were keeping busy while staying at home, counting frequent references to boredom. This was the most prevalent theme found, as it makes up 21% of the sample. Activities mentioned included video games, baking, home renovations, or catching up on sleep. Examples include one user's tweet: "Keeping busy during #quarantine..." (accompanied by an image of freshly baked cookies) or another user who wrote, "What is something you've gotten accomplished during #quarantine that you had been putting off? A big project, cleaning, organizing, repair work, new recipes, rekindling a friendship?"

Reactions to actions taken by the government was the second most commonly occurring theme, encompassing 19% of the sample. This category includes tweets which either praised or criticized the actions of municipal, provincial, and federal governments in response to COVID-19, as well as comments about the job being done by political leaders.

One example of a Twitter user’s reaction to government decisions is a tweet stating, “Definitely not a coincidence that all of this is happening - the lay-offs, the pipeline bailout - all while no one can protest due to COVID. #ableg #alberta #abed.”

The third most prevalent theme found was *humour*, which comprised 15% of the sample. This category accounts for posts with jokes, sarcasm, trolling, or those that shared memes or other images intended to be humorous. One tweet reads, “Day I don’t even know anymore of the quarantine and the children next door have graduated from stomping elephants, to [velociraptors] to now just generally screaming at each other and slamming doors #birthcontrol.”

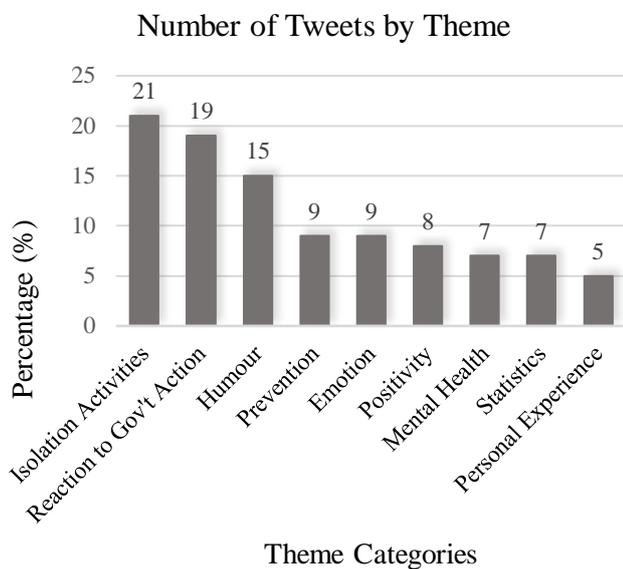


Figure 1: Percentage of Tweets by Theme Category

Prevention includes all posts which encouraged measures to prevent the spread of COVID-19, such as self-isolation, staying at home, hand washing and social distancing. Prevention was referenced in 9% of the sample posts. For example, one user tweeted: “Proof positive that kids are paying attention. My 6 yo & her friend just hosted a news show together via FaceTime on “@GlobalEdmonton” about #coronavirus. The main messages, wash your hands, stay home, don't touch someone w/#COVID19 & listen to Dr. Hinshaw”.

The category of *emotion* consists of those posts in the sample where users expressed feelings of fear, worry,

and annoyance or anger because of the ongoing situation. Tweets of emotion represent 9% of the sample, including one post which read, “I’m overwhelmed and panicked about the real life impact this pandemic has had on my family...”

Positivity was the category assigned to any Twitter post in the sample which had a positive or encouraging message. This was a theme found in 8% of the sample, with tweets expressing praise for frontline workers, positive virus outcomes, and random acts of kindness like the one referred to in this tweet: “#AlbertaCares Neighbour dropped off tulips this afternoon. Some spring cheer in the time of COVID! #COVID19.”

In the sample, 7% of Twitter posts made specific reference to *mental health*. This category includes all tweets which discussed mental health struggles or well-being in relation to COVID-19 and the measures being taken during the pandemic, as well as offers of support for others who may be having a similar experience. A user wrote, “I think the hardest thing for me is not the isolation, but having a purpose each day. Goals, dreams, life... all on hold. That’s what I find challenging for my mental health, just thought I’d share for anyone else having a hard time, we will get through this together.”

The sharing of COVID-19 *statistics* was another popular theme in the sample tweets. Many users reiterated the daily case numbers as they were provided, or shared information about projections for cases and deaths as a result of the virus. For example, one Twitter user posted this daily breakdown: “March 31 Alberta COVID-19 Update. 64 new cases in past 24 for total of 754. 453 in Calgary zone, 187 in Edmonton zone. One more death for total of 9. 75 cases community acquired.”

Finally, *personal experience* accounts for those posts by users who had experienced the virus on a personal level, either directly (themselves) or indirectly (someone they know). Personal experiences comprised 5% of the sample, such as this post: “My co-worker and her husband both tested positive for COVID. And a healthy 30-year-old father of 3 who worked in my 'company' passed away yesterday from COVID. #hitshome.”

Discussion

Posts made on Twitter revealed several themes which characterized the reactions of Albertans to the ongoing COVID-19 pandemic. Despite the serious nature of the current situation, Twitter users have continued to respond in a primarily positive manner, through the use of humour, support for one another, praise for those in essential services, and found ways to come together despite social and physical distancing. The use of humour, in particular, is a common theme across multiple studies, where jokes are used as a way to mitigate stress or anxiety (Duggan, cited in Seltzer et al., 2010). Ahmed et al. (2019) considered such 'nervous humour' to be its own category in their study (p. 66).

Surprisingly, the majority of posts in this sample reflected an understanding of the current health crisis, and the inclination of these Twitter users to follow the recommendations being made to control the spread of this virus. The Health Belief Model reasons that individuals are more likely to modify their behaviour in order to protect themselves from a disease if they perceive it to be a significant threat (Becker, 1974; Janz & Becker, cited in Ahmed et al., 2019, p. 67). This perceived threat encompasses the likelihood of becoming ill, how serious the disease may be, and the intelligence and personality of the individual (Becker, 1974; Janz & Becker, cited in Ahmed et al., 2019, pp. 67-68). Analysis of Twitter posts about COVID-19 support this theory; users did express some boredom, but they are still sharing the message to stay at home, practice hygiene, and ultimately not complaining about the need to self-isolate.

One of the primary findings in the research of Ahmed et al. (2019) was that there was a great degree of misunderstanding about H1N1 and how it spread, in part due to it being referred to as the 'swine flu' or in some countries the 'Mexican flu', based upon its origin (p. 67). The study by Seltzer et al. (2010) also found themes of confusion about how Ebola was spread (p.1275). However, there were no findings in this current study to indicate false understandings of how COVID-19 is spread, nor were there any references to a 'Chinese virus'. The number of posts which responded directly to measures taken by the government and those which shared important COVID-19 statistics support the idea that, in this pandemic, Twitter users are

striving to remain well informed and are following news stories and pandemic-related current events.

There are several limitations to be considered regarding this study. Primarily, the sample size was small, as it was comprised of only 100 Twitter posts. Posts were manually coded by the researcher and therefore are also limited by language (only English posts were included), and some categories may be subjective (i.e., humour). Additionally, posts were limited to those made by regional Twitter users. While a practical measure in this study, it is likely to have influenced the content of tweets analyzed. For example, the number of critical tweets directed at the federal government. Due to the sample size, privacy settings, search limitations, and tweets that may have been COVID-19 related but did not contain any of the keywords, there may be relevant or significant data missing from this study. Further research of themes found in Twitter posts would be beneficial for assessing the relevance of tweet content to the current pandemic. Such research may also compare Twitter reactions to COVID-19 with responses to other major health events (such as H1N1, Ebola, MERS or the Zika virus), to better understand how individuals express themselves over social media during these events.

References

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