#COVID-19 Misinformation: Saudi Arabia as a Use Case

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# EXTENDED ABSTRACT

The emerging coronavirus (COVID-19) pandemic began spreading in people in December 2019 and rapidly has now spread from a single city to more than 200 countries. As of today, COVID-19 has affected more than 4 million with mortality exceeding  300,000 people globally. COVID-19 has wide disruptive effects on the economy, healthcare systems, governments, societies and individuals.  The crisis on this scale and uncertainty has given rise to countless rumors, hoaxes and misinformation causing panic. Much of this type of conversation about coronavirus and misinformation now occurs online and in particular on social media platforms like Twitter. In the local context of Saudi Arabia, evidence suggests that a high proportion of health-related social media posts are not necessarily accurate (Albalawi, Nikolov, & Buckley, 2019). As the COVID-19 pandemic continues to progress, further research is starting all around the world to study the associated infodemic and how to aid stakeholders in limiting the effects of misinformation which is what this research aims to achieve.

The misinformation spreading can strongly influence individuals’ behavior and consequently alter the effectiveness of the countermeasures deployed to curb the spread of the disease (Cinelli et al., 2020). We may encounter different types of coronavirus pandemic information on a daily basis; some of this is helpful, but a lot is misleading or completely fake. For example, some of this fake information is that COVID-19 was purposely created in a lab in order to control the world. Also, people may come up with different ideas of cures whether it is drinking boiled garlic water or whatever people suggest that is for prevention or the cure it is being withheld. In addition to that, some of this false information may lead to more fear or panic. Thus, it is essential to recognize that misinformation can have negative impacts on the public’s health and further develop our understanding in order to combat the coronavirus misinformation.

In this study, we aim to gain deep insights into information behavior when discussing epidemics on Twitter. We are more specifically interested in identifying misinformation spread regarding epidemics around the world and in particular, in Saudi Arabia. We are also interested in understanding the effects of governmental laws as a way to prevent the spread of misinformation. Questions to be answered include:

* Which types of misinformation spread the most in pandemics?
* How does misinformation evolve over time?
* What is the effect of governmental laws in the spread of misinformation?

We propose a mixed method study to determine if information-exchanging behaviors can be used to minimize the effects of  emergent misinformation. To do this, Twitter data was collected for the period beginning in December 2019 to the present day of April 10, 2020 using several keywords related to the pandemic in Arabic (Addawood, 2020). The total number of tweets collected was 3.8 million tweets. After a quick screening throughout the dataset, we collected seven main misinformation circulating in social media and specifically on Twitter. Using these chosen misinformation, a list of Arabic keywords are selected to extract these misinformation from Twitter dataset. Two annotators then went through these subsets to label each tweet as actually being a  misinformation or not. In addition to twitter data, we also created a short survey to collect rumors and fake news that spread in the community. To study the effect of  governmental Saudi laws in the spread of misinformation, the misinformation laws were collected.

Some of our early findings reveal that the association between the timeline and how each rumor evolves and spreads. For example, the crisis started with rumors about China and how this virus is a result of  the attacks against Uighurs Muslims in China. Then, when it spread outside China, another type of misinformation came about the Arab immunity. After it reached Middle East and spread in Gulf came the Iran and Eastern region spread and lockdown rumor. Once it spread inside the country, it became the end of the world.

The urgency and rapid changes in the ongoing pandemic incurs some limitations to the study, which include the data sampling technique as the Twitter dataset provides snapshots of a current state of the public perceptions and psychological crisis response, and will not allow the assessment of actual causal relations. Moreover, a large portion of public perceptions are expressed and disseminated on encrypted platforms such as WhatsApp and private communication which are beyond the scope of analytics in this study.

The expected outcome of this research will make significant strides to improve healthcare, enhance patient safety, and promote health education in Saudi Arabia. Regarding the public health programs, the Ministry of Health continuously monitors possible issues related to misinformation and stigma as they emerge to allow for early and rapid response by public health organizations, and identify gaps between perceived and actual knowledge which consequently help to evaluate the effectiveness of pandemic response measures, and the acceptance and effectiveness of policies and restrictions implemented in the local and regional contexts. referring to  WHO's protocol description of public health interventions for misinformation (Alamro et al., 2020).

The novel coronavirus pandemic poses a serious threat to the well-being of citizens and residents in Saudi Arabia. The expected outcomes of this research will contribute to improving the prevention measures of potential epidemics. Our research project will address challenging issues that are of great important to public health. Detecting health rumors in a timely fashion can help public health officials monitor variables that are critical for behavior change in the population to avoid further spread of COVID-19.  In the case of the COVID-19 outbreak, some of the rumors circulated on social media networks, such as conspiracy theories or remedies that have no basis in science that may lead to health complications.

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