Global Prevalence Patterns of Anti-Asian Prejudice on Twitter During the COVID-19 Pandemic

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INTRODUCTION

- On **January 30, 2020**, the World Health Organization (WHO) declared the spread of the SARS-CoV-2 to be a public health emergency (Google Trends, 2021; World Health Organization, 2021).
- The terms **COVID-19 and coronavirus** were developed to avoid any cultural, social, regional, or ethnic associations when naming a disease (World Health Organization, 2015)
  - However, given the origins of the virus, COVID-19 was frequently referred to in the media as the '**Chinese virus'**, the '**Wuhan virus**', and the '**Asian virus**' (Darling-Hammond et al., 2020; Grover, Harper, & Langton, 2020; Levenson, 2020; World Health Organization, 2020).
- The use of these terms has led to an increase in in-person and online anti-Asian prejudice during the pandemic (Ruiz, Edwards, & Lopez, 2021).

  - In the United States, there was a **145%** increase in reports of anti-Asian hate crimes and physical violence to the police in 2020, as compared to previous years (Levin & Grisham, 2021) .
  - The Anti-Defamation League reported an **85%** increase in anti-Asian discrimination online (Anti-Defamation League, 2020).
  - Nguyen et al. (2020) found a **64.4%** increase in anti-Asian racism on Twitter during the pandemic, while negative tweets towards other races remained stable.
- Asian individuals who have been subjected to racism report increased levels of depression, anxiety, stress, and chronic diseases (Gee et al., 2009; Vines et al. 2017).

Current Study

- The aim of this study is to present exploratory and descriptive analyses on anti-Asian prejudice and counter-messaging on Twitter during a 15-month period of the COVID-19 pandemic and to comprehend the spread of racist content on Twitter during the pandemic.
- The study presents global figures that incorporate data on COVID-19 cases with temporal trends in positive and negative tweets.

METHOD

- Using the Twitter Data Collection API, we queried tweets containing positive and negative hashtags related to anti-Asian prejudice from January 30, 2020, to April 30, 2021.

Racist Hashtags/Keywords		Positive Hashtags/Keywords
#batsoup	#bioweapon	#hateisavirus
#Chinavirus	#commie	#Iamnotavarius
#GobacktoChina	#Wuflu	#racismisavirus
#Chinesevirus	#Chingchong	#washthehate
#Chineseplague	#MakeChinaPay	#racismisavirus
#gook	#Cccpvirus	
#Chinaliedpeopledied		

- We selected these hashtags based on a review of relevant literature on anti-Asian prejudice (He et al., 2021) and news publications (Cava & Lam, 2020; Chiu, 2020; Shim, 2020), during the beginning of the pandemic.
- The total sample consisted of 13,008,053 tweets from 3,298,940 distinct users.
- Using a fuzzy text matching algorithm, user-reported locations and predetermined locations were matched using the edit distance metric (Cohen, 2022).
- All the data was collected according to Twitter data collection guidelines and using the proper API access provided to researchers (A. D. Dubey, "The Health and Surveillance, vol. 6, ed. 4, 10.2196/19833, 2020resurgence of cyber racism during the COVID19 pandemic and its after effects: Analysis of sentiments and emotions in Tweets", JMIR Public).
- We refer to anti-Asian content as "negative" and counter-hate content as "positive."

RESULTS

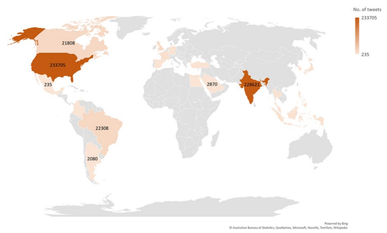

Fig.1 Count of negative tweets produced per country

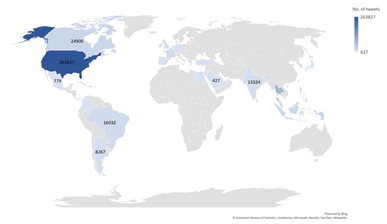

Fig.2 Count of positive tweets produced per country

Globally, 4,521,457 distinct tweets contained at least one of the 12 negative keywords, with most of this content generated in the U.S. and India (USA = 233,705 tweets; IND = 228,621 tweets). 6,660,469 distinct tweets contained at least one of the 5 positive keywords, with most of the positive content also generated in the U.S., followed by Thailand (USA = 263,827 tweets; TH = 82,696 tweets).

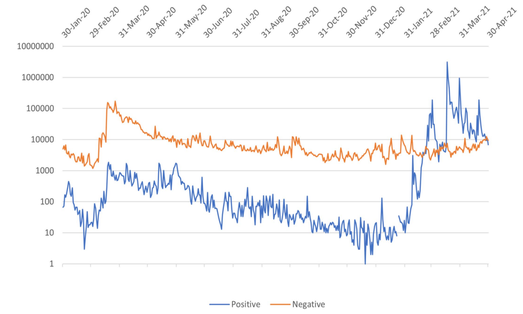

Fig. 3 Logarithmic scale of the number of negative and positive tweets

The negative keywords were infrequently used before March 2020, but there was a significant increase in that month, and peaking later in the month. Positive keywords were used less frequently throughout the timeline but had major spikes in late February 2021.

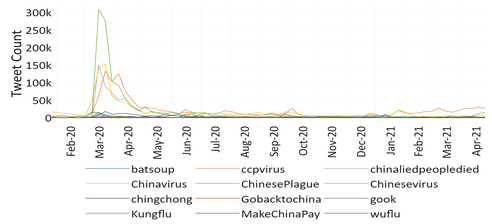

Fig.4 Frequency of negative keywords use on Twitter

A sharp spikes in negative activity occurred following President Trump's first use of the term "Chinese Virus" in March 2020. The most frequently used negative keyword was "ccpvirus," followed by "chinavirus" and "chinesevirus."

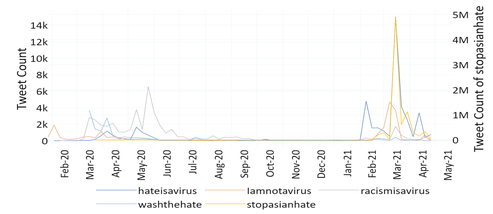

Fig.5 Frequency of positive keywords use on Twitter

Although there were more tweets containing positive keywords, overall, these tweets were mainly generated between February 2021 and April 2021. The most frequently used positive keywords were "stopasianhate" and "hateisavirus".

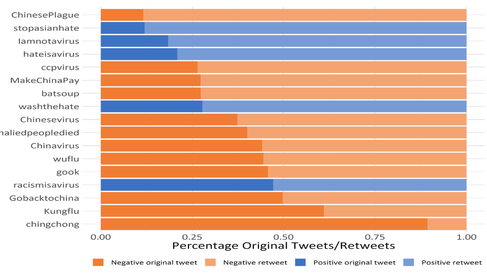

Fig.6 Percentages of original tweets and retweets for all keywords

- We also assessed the proportion of keywords within original tweets and retweets.
- Three of the four most frequently retweeted keywords were positive, implying that tweets containing negative keywords may have been less appealing to share (i.e., retweet). 88.02% of tweets referencing the "stopasianhate" keyword were retweets.

DISCUSSION

- The present study investigated temporal and geographic trends in anti-Asian prejudice and counter-hate messages on Twitter in the 15 months after the World Health Organization declared COVID-19 a public health emergency. Our findings indicate that the increased prevalence of anti-Asian prejudice during the early stages of the pandemic was a global phenomenon (X. Tan, R. Lee, and L. Ruppanner, "Profiling racial prejudice during COVID-19: Who exhibits anti-Asian sentiment in Australia and the United States?", Australian Journal of Social Issues, vol. 6, ed. 5, 10.1002/ajs4.176. 2021).
- Specifically, marked increases in anti-Asian hate on Twitter occurred during the months of February 2020 and March 2020.
- Our analyses also revealed geographic differences in the frequency of negative (anti-Asian) and positive (counter-hate) content generated by Twitter users on a global scale.
- By disaggregating the data according to tweet type (e.g., original tweet versus retweet), a more nuanced understanding was gained regarding the sharing of anti-Asian and counter-hate messages, including the ways and extent to which they are shared.

Limitations

- Only tweets containing at least one of the (English language) anti-Asian hashtags and keywords were queried.
- Further research on anti-Asian content on Twitter is important because it's possible for content containing prejudice towards Asians to be posted without utilizing one of the 13 chosen hashtags.

This work was supported by the National Science Foundation under awards #2036127 and #2227488.