



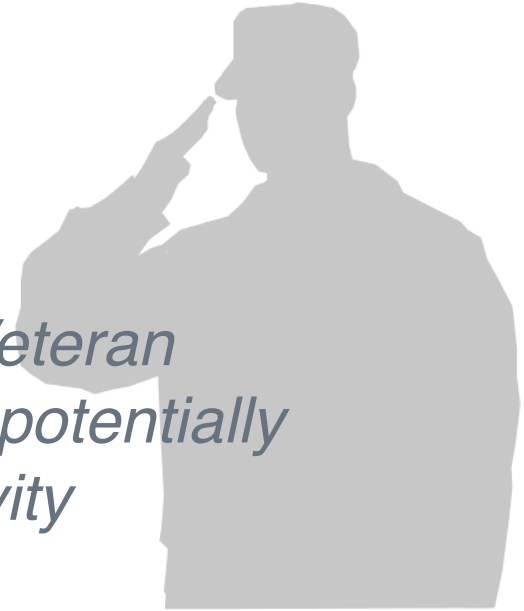
Analyzing Veterans Affairs Twitter

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Metis Winter 2021

Motivation

Significant information about the Veteran population (risks, needs, etc.) can potentially be gleaned from social media activity



Background

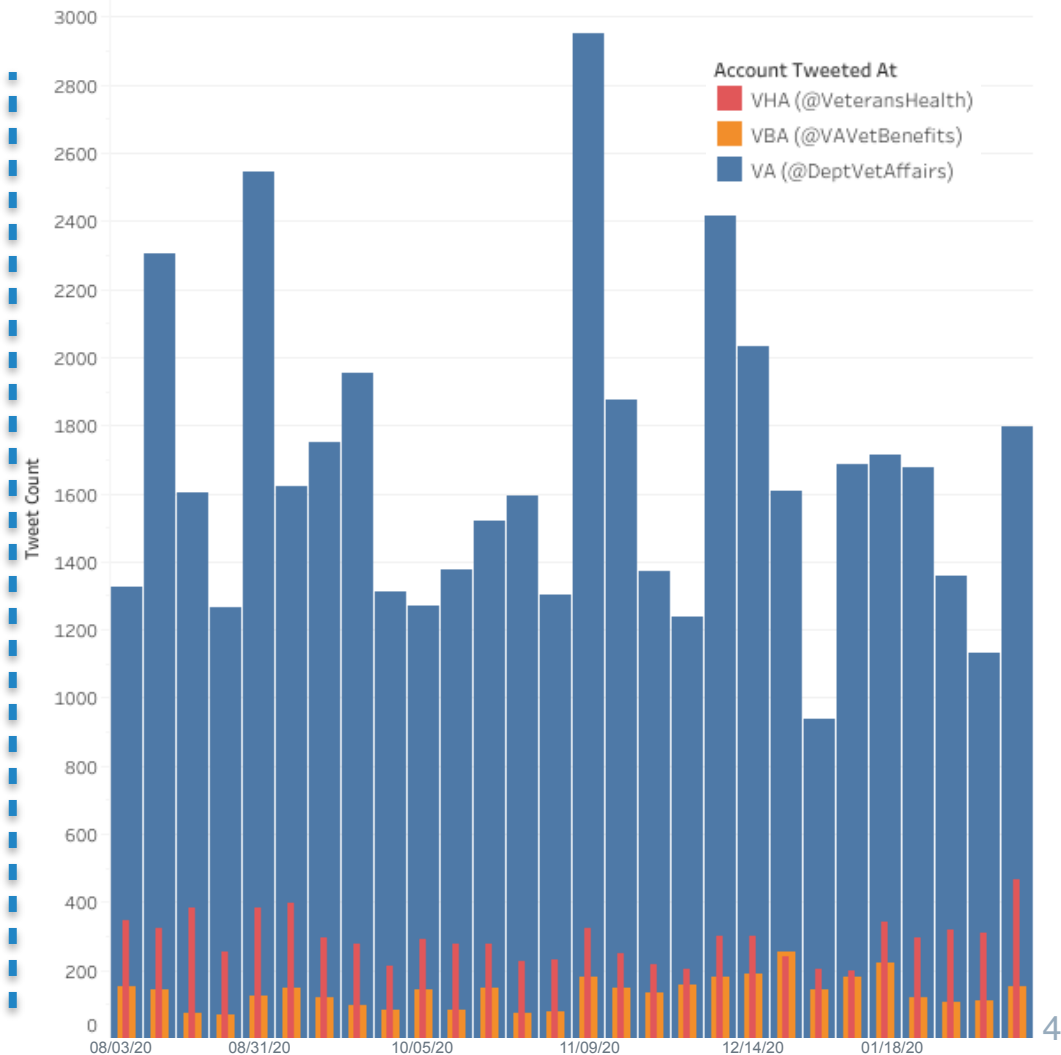
- Tweets to/from Veterans Affairs, Veterans Benefits & Veterans Health accounts
- 6 mo. of activity (Oct2020 - Jan2021), ~50k+ tweets
- Data via Twint, Topic Modeling via SKlearn, Sentiment Analysis via VADER

Tools Used



Data: Tweets per Week To/From Veterans Affairs Accounts

- Veterans Affairs (Main Account)
- Veterans Health Administration
- Veterans Benefits Administration



Topic Modeling

- Countvectorizer
- Non-negative Matrix Factorization

Focus Topics

Topic 0: ['usdol', 'interior', 'usnavy usmc usairforce', 'usnavy usmc', 'usedgov', 'usarmy interior']

Topic 1: ['usmc', 'usarmy europe', 'usmarinecorps', 'usnavyseals', 'usarmy', 'usmc usmarinecorps']

Topic 2: ['amp', 'ok', 'support', 'families', 'dr', 'work']

Topic 3: ['fbi', 'cia', 'cia fbi', 'tkiforgiven', 'thwestonmike', 'nicomanocchio']

Topic 4: ['denismcdonough', 'hudgov', 'usda', 'ambassadorrice', 'hillaryclinton', 'mlfudge']

Topic 5: ['suicide', 'called', 'time', 'prevention', 'suicide prevention', 'told']

Topic 6: ['care', 'health', 'health care', 'mental', 'mental health', 'medical']

Topic 7: ['end', 'testing', 'dog', 'sign', 'permanently', 'abusive']

Topic 8: ['votevets', 'vfwHQ', 'dvhq', 'iava', 'votevets iava', 'uswomenveterans']

Topic 9: ['coronavirus_pandemic', 'vaccine', 'coronavirus_pandemic vaccine', 'deaths', 'cases', 'new']

Topic 10: ['gop', 'vp', 'housevetaffairs', 'realdonaldtrump vp', 'thedemocrats', 'secpompeo']

Topic 11: ['vernon', 'watson', 'nimnyandy', 'arlingtonpdtimothy nimnyandy gordoncalbert', 'investigatortimothy watson', 'investigatortimothy watson arlingtonpdtimothy']

Topic 12: ['starsandstripes', 'americanlegion', 'afglobalstrike marinetimes armytimes', 'afglobalstrike marinetimes', 'afglobalstrike', 'marinetimes']

Topic 13: ['just', 'like', 'people', 'know', 'dont', 'im']

Topic 14: ['uressien', 'varesearch', 'vhsrd', 'vapittsburgh', 'vhsrd varesearch', 'vaequity']

Topic 15: ['help', 'learn', 'need', 'resources', 'program', 'support']

Topic 16: ['gop', 'senategop', 'housegop', 'ivankatrump', 'senatorcollins', 'lindseygrahamsc']

Topic 17: ['usps', 'need', 'votevets', 'vfwHQ', 'health', 'veteransunited']

Topic 18: ['secwilkie', 'fpwellman', 'whitehouse', 'sendavidperdue', 'sendavidperdue secwilkie', 'senthomillis']

Topic 19: ['service', 'thank', 'today', 'military', 'day', 'war']

Topic 20: ['vfwHQ', 'americanlegion', 'americanlegion vfwHQ', 'choucair', 'ltgrusselhonore', 'cdcdirector']

Topic 21: ['realdonaldtrump', 'joebiden', 'potus', 'whitehouse', 'gop', 'vp']

Topic 22: ['mayorofla', 'action', 'calls', 'lapdq', 'zero', 'conditions']

Topic 23: ['trump', 'military', 'president', 'vote', 'losers', 'biden']

Topic 24: ['usarmy', 'usnavy', 'usmc', 'usairforce', 'votevets', 'usarmy usnavy']

Tweets

Suicide Prevention:

“last time my wife called your so called suicide hotline suicide prevention line whatever you’re calling it this month the lady told her not to give the name of who she was talking about i guessed thats a lot of paperwork”

.85 Suicide Topic Score, -.88 Compound VADER score

Tweets

Mental Health

“my mental health care doctor quit friday this past friday i had an appointment with her this week ive now lost mental health providers primary care provider amp chiropractor since ive been wout a pcp since now no mental health provider department_of_va”

.43 Mental Health Score, .44 Compound VADER score

Tweets

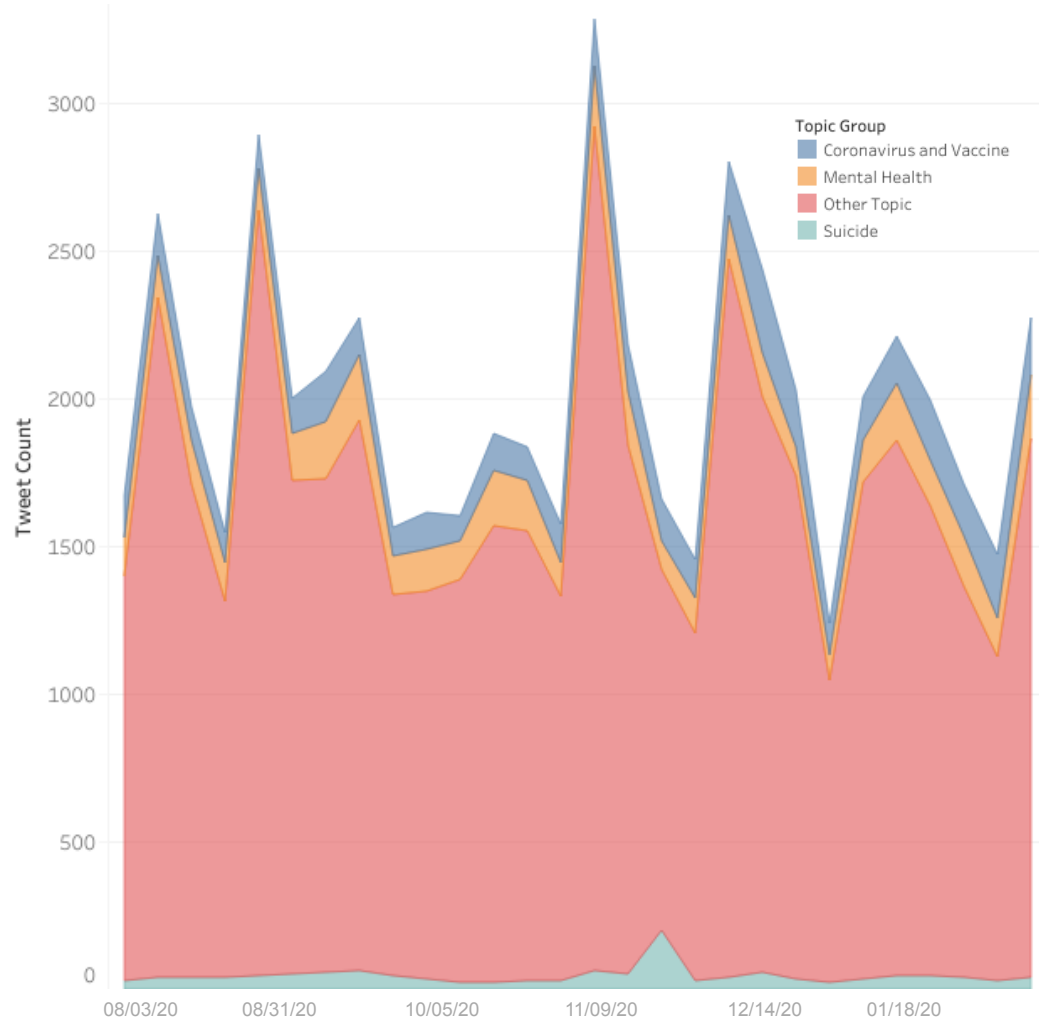
Coronavirus

“at least in my opinion only non frontline worker has gotten coronavirus_pandemic vaccine and i have talked with frontline workers who havent received coronavirus_pandemic vaccine c does the department_of_va have a policy requiring all employees to take coronavirus_pandemic vaccine”

.5 Coronavirus Topic Score, Neutral Compound VADER score

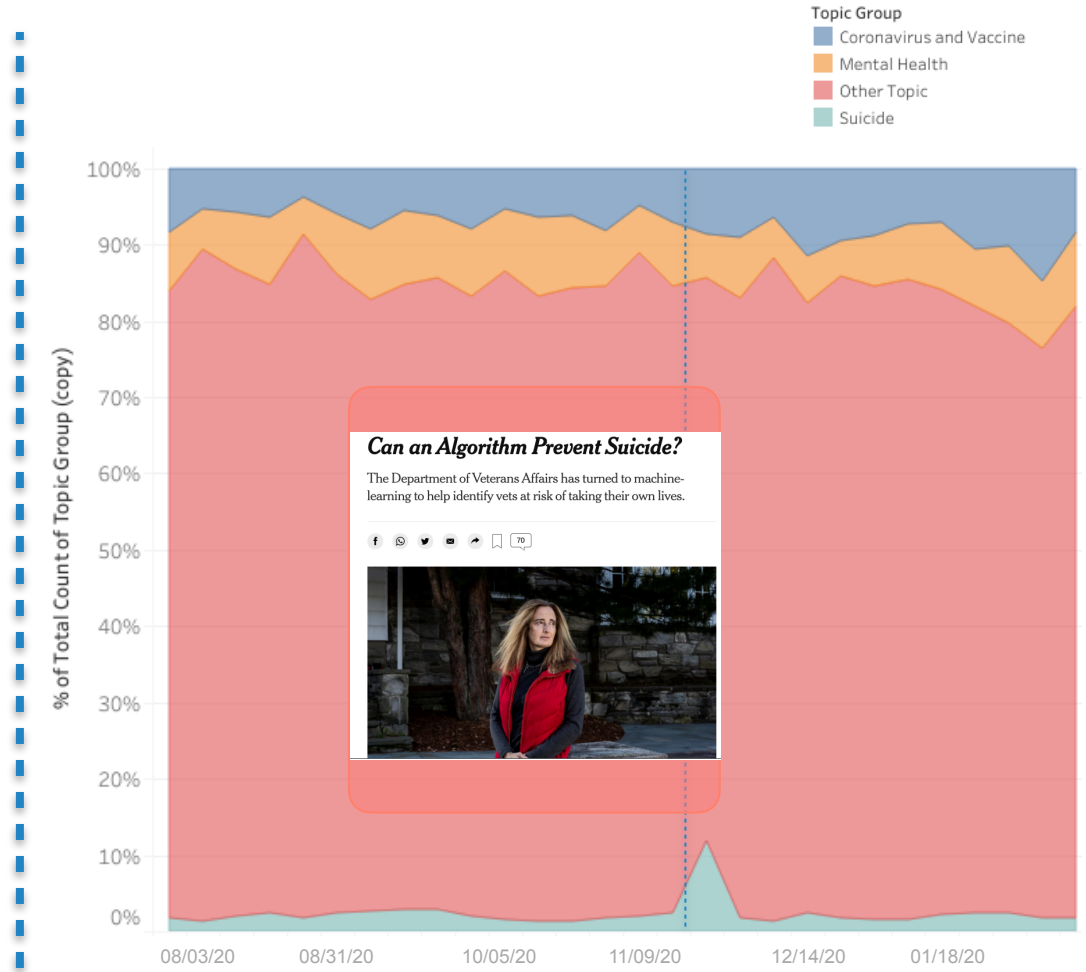
Select Group Tweet Distribution

- Coronavirus Related
- Mental Health & Suicide Information
- For Further Review: “My case” & Political Tweets



Select Group Tweet Distribution

- Steady distribution/
occurrence
- VA Annual Suicide
Report & NY Times
Article in Nov. 2020

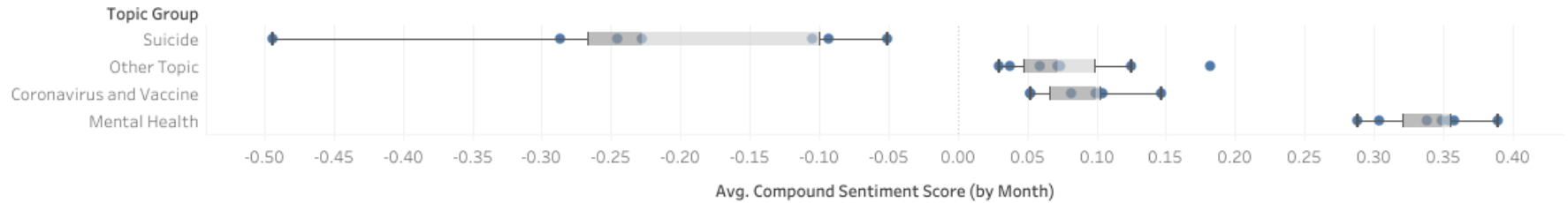


Special Cases, e.g. Topic 22: 'mayorofla', 'action', 'calls', 'lapdhq', 'zero', 'conditions'



Sentiment Analysis

Using VADER Sentiment Analyzer



Major Takeaways

- Little movement for targets over time
- Politics and personal situations dominate
- Trigger events create “blips”

Future

- *Drill into “other” groups*
- *Further address “outliers” (super-tweeters & bots)*
- *Expand comparison of VA-outgoing vs. Veteran incoming tweets*

BACKUP

Relationships Between clusters

