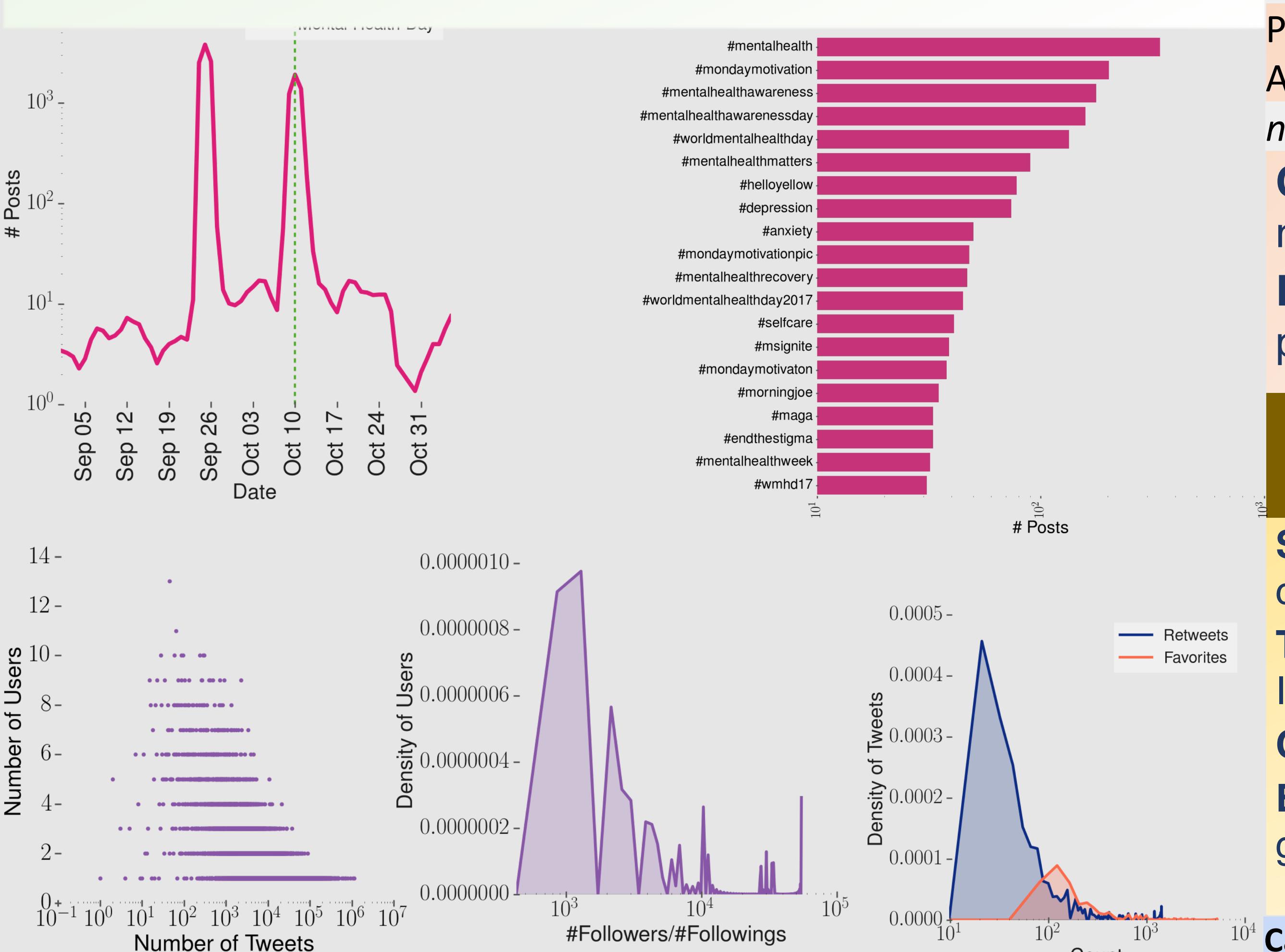


# A STUDY OF MENTAL HEALTH AWARENESS CAMPAIGNS ON SOCIAL MEDIA

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## INTRODUCTION

Mental Health Awareness Campaigns (MHACs) are conducted on social media to help raise mental health awareness. There are evidences about its success to increase mental health visits (Bell Let's Talk effort) and to help forecast the acuity of health emergency in real time (Boston Marathon Bombings). Our work examines the content and the engagement around one such MHAC to explore the potential of social media in public health campaigns.



## DATA

#mentalhealthday, #mytipsformentalhealthday

Collected tweets, retweets, favorites, retweeters and favoriters

Metric	Value Metric	Metric	Value
No. of Posts	14,217	No. of Retweets	48,223
No. of Users	10,805	Median Retweets	3.39
Avg. Posts per User	1.32	Stdev. Retweets	29.28
		No. of Favorites	145,682
		Median Favorites	10.25
		Stdev. Favorites	87.40

## METHODS

**Expert Labeling:** 700 tweets were annotated by clinical psychiatry experts in 7 categories

**Machine Learning Classifier:** Semi-supervised learning ( $k-d$  tree based vector similarity + SVM)

Feature	Description
Hashtags	Hashtags used in the post (Top 50)
URL	Presence/Absence of a URL
Sentiment	Sentiment of the post
Parts of Speech	Sequence of parts-of-speech (POS) tags
Psycholinguistic Attributes	Normalized occurrences of Linguistic Inquiry and Word Count (LIWC) categories
$n$ -grams ( $n = 1, 2$ )	500 Unigrams and Bigrams

**Content Analysis:** Sparse Additive Generative (SAGE) model to find discriminating keywords per category

**Engagement Analysis:** Examine engagement received per category of posts in terms of retweets & favorites

## RESULTS

**Semi-supervised classifier** performs better than the seed classifier.

**Top features** include hashtags, 2<sup>nd</sup> Person Pronoun, and Imperatives.

**Content-wise** Personal/Social Tip and Inspirational occur most. **Engagement-wise** Stigmatizing and Inspirational posts receive greatest Off-topic posts receive the lowest engagement

Category	Example Twitter Post
Stigmatizing	Stop being a liberal and start being a caring human being #MyTipsForMentalHealth pic.twitter.com/8jl9N1lfuR
Inspirational	Do not look at your scars as a weakness, look at them as all the times you defeated your demons and made it here. #MyTipsForMentalHealth
Medical/Clinical Tip	Your brain is an organ. Don't be afraid to see a doctor if need-be. #MyTipsForMentalHealth
Resource Related	Have you taken a #MentalHealthDay yet? Here's why you probably should. http://ajplus.co/btqgg
Personal/Social Tip	Mental health is so important, health is the most important thing.
Off Topic	#MentalHealthDay
Stigmatizing	Marry the right person. #MyTipsForMentalHealth

Classifier	P.	R.	A.	F1
Seed	0.29	0.54	0.52	0.38
Semi-supervised	0.62	0.64	0.64	0.62

Model	Max	Mean	Median	Stdev.
Logistic Regression	0.89	0.79	0.82	0.11
Random Forest	0.86	0.81	0.85	0.10
SVM	0.88	0.81	0.78	0.08

Cat.	Top phrases (bi- and tri-grams)
S	smoke weed, stop watching, block block, stay away toxic, felizlunes franco, smoke joints, stop letting, don follow trump
R	mental health http, dr paul hopkins, uk news, mental health survey, daily http, chrishughes_22 status, hopkins speaks truth
PS	toxic people, spend time, dont afraid, deep breaths, surround positive, don isolate, limit social media, avoid toxic people
M	talk doctor, taking meds, meds need, psych meds, meds help, ask doctor, remember meds, luper led, electroconvulsive therapy
I	okay okay, mental health important, physical health, seeking help, meet fighting, stigma surrounding, fighting battle know, make bad person, youre loved, strength courage

