A critical review on Methods in predictive techniques for mental health status on social media

*Md.Saiful Islam
United Internationa University
Dhaka,Bangladesh
mislam181292@bscse.uiu.ac.bd

†Joyshree Sarkar
United Internationa University
Dhaka,Bangladesh
jsarkar181169@bscse.uiu.ac.bd

Reference and Paper

Stevie Chancellor,Munmun De Choudhury,S.C. gathered the documents, filtered the dataset, conducted the close readings, and conducted the analysis of the dataset. Both S.C. and M.D.C. conceptualized the project, discussed the findings to identify thematic trends, and reviewed the paper of Machine Learning Approaches for Mental Disorder Prediction on Social Media and published 24 March 2020.The paper link is https://www.nature.com/articles/s41746-020-0233-7Abs1

Summary

Social media now used for mental health predictors.Computer scientist now using it to predict presence of specific mental disorders and symptomatology, such as depression, suicidality, and anxiety.Use social media data and predict the future for a single person. We learn about the prediction for total humans who are using social media and also learn for a single person.We find 75 studies in this area published between 2013 and 2018.Our outcome result the method of data annotation status,data collection and quality management.We take the pre processing and feature selection,verification,model selection .We identify to concern trends around construct validity,and the lake of reflection in the method and identify mental health.We provide some challenges for reporting publication and collaboration opportunities in this interdisciplinary space.

Using Algorithom

There was high diversity in algorithm selection, of which 73/75 papers reported on their algorithm of choice. The most popular predictive algorithm was Support Vector Machines, used by 24 projects Fifteen studies used logistic regression and Random Forest at seven papers in the corpus We also saw the use

Selection Algorithom

1. Decision trees
2. Naïve Bayes

3. XGBoost
4. Linear regressions
5. Relational analyses
6. Log-linear regression

Control Data

Managing data quality and sampling strategies

1.Platform Behavior Thresholds

2.Legitimate Mental Health Mentions

3.Restriction on Participant Characteristics

4.Quality Control During Online Surveys

5.Removing Spurious Data

Variable selection/feature engineering

1.Language Features

2.Behavior

3.Emotion and Cognition

4.Demographic Features

5.Image Features

Using Tehniques

Human Assessments

Some researchers have used workers from crowdsourcing sites like Amazon Mechanical Turk to identify the condition or verify the veracity of the downstream MHS after another protocol.

Community or Network Affiliations:

Community participation was used as signal in social networks with formal communities.use the signal of hashtags on apps like Instagram.

Self-Disclosure:

This approaches searched for individuals to state that they suffer from a specific condition or are engaging in behaviors indicative of MHS.

Administering Screening Questionnaires:

Another popular technique was administering screening tools and questionnaires to consenting participants

1.Rating Depression Scale (SDS)
2.Screeners were also used for other mental health status, such as suicidality.

Gap Analysis

When we watch videos on Facebook, Twitter, YouTube, it gives us recommended videos. But in this journal paper, the recommended video was not mentioned. Even when we like, comment or share a post on social media, the videos and posts made on that page recommend us. Any feedback, likes, comments made by our mutual friends; Notified in the form of a notification. But this issue is not discussed in this journal. When a user posts or gives a status, it would be better to keep them by category. Which will help a lot to know about the current status and mental health of that user.

On the other hand there have no catagorical data use or no clustaring data use.But if we want to devide the whole data catagorical and make cluster for the diffrent data we can more clearly identify the patient of mental health and magerment.

Critical Analysis

The article provides a critical review of MHS forecasting methods on social media.

Since 2013, CS researchers have been using behavioral and linguistic cues to predict the presence of mood and psychosocial disorders such as depression, suicide, eating habits, self-harm, stress, severity of mental illness, and the presence of schizophrenia assessment from Sodel Media data. Clinical assessment, not used personally. The signals were taken from postings and behavioral histories of social media websites and apps, such as Twitter, Reddit and Facebook.

Facebook users are using artificial intelligence to scan their posts to make them think suicidal.

The 22 research papers differentiate between suicide topics such as whether or not there is a doctrine of suicide, will attempt suicide, suicidal ideation and other discussions of suicide.

Eight studies have considered eating disorders, eight have tested for schizophrenia, and finally, eight studies have used social media data to study anxiety.

Other disorders and conditions include bipolar disorder, traumatic stress disorder, borderline personality disorder and panic disorder.

Methods and insights are taken from interdisciplinary fields such as health information, machine learning, artificial intelligence, natural language processing, and human-computer interaction.

Many studies have created a negative / control dataset from randomly sampled data on social media platforms. Samples of people who did not express the condition or did not participate in mental health-related communities were included.

References

**

1.Stevie Chancellor,Department of Computer Science, Northwestern University, Evanston, IL, USA,Munmun De Choudhury ,School of Interactive Computing, Georgia Tech, Atlanta, GA, 30308, USA

2.De Choudhury, M., Gamon, M., Counts, S. Horvitz, E. Predicting depression via social media. ICWSM 2, 128–137 (AAAI, 2013).

3.Coppersmith, G., Ngo, K., Leary, R. Wood, A. Exploratory analysis of social media prior to a suicide attempt. In Proc. 3rd Workshop on Computational Linguistics and Clinical Psychology. 106–117 (ACL, 2016).

4.Shing, H.-C. et al. Expert, crowdsourced, and machine assessment of suicide risk via online postings. In Proc. 5th Workshop on Computational Linguistics and Clinical Psychology 25–36 (ACL, 2018).