An Intelligent Detection-Based Approach to Identify Signs of Depression Using Micro-Blogging Data Analysis

Authors: Dharini Shah, Srishti Mishra, Mitali Manjarekar, Ayush Pandey, Academic Advisor: Prof. Chaiyaporn, M

Opportunity

✓ The paper proposes a brief, new measure of depression severity using social media analysis.
✓ PHQ-9 has the prospect of being a dual-purpose tool that, with the similar 9 items, can find depressive disorder diagnoses as well as grade depressive symptom severity.
✓ The goal is to compare the results of a standard 2-week period for PHQ-9 assessment to iterative 4-day monitoring and hence develop a robust, time-sensitive system.
✓ The research paper aimed to identify the linguistic features of tweets and the behavioral patterns of Twitter users who generate them, which could suggest signs of depression and recommend ways that can potentially help them cope with depression.
✓ This assessment will aid the traditional approach. It would provide for early awareness and regular monitoring of depressive signs.

Approach

01 We are identifying depression cues from social media posts.
02 We achieve this by using feature extraction and classification algorithms to map PHQ-9 assessment to social media data.
03 Once we get the assessment score of the patient, a treatment is suggested based on this score and the patient’s progress is tracked in terms of drop in his score for successive visits.
04 This tracking is done for both the scenarios: 4 day visit and 2 week visit and the results are compared.

Data or Results

As observed in graph-1, combining generic(DSM-IV) guidelines along with social media analysis allows us to keep an active track on subject’s everyday state and track their progress with time. This lets us monitor positive/negative impact of the ongoing treatment on subject’s mental health and change course if required.

As observed in graph-2, a 4-day period gives a detailed picture of subject’s mental-health state compared to traditional 2-week period enabling us to take immediate action in terms of updating treatment-course especially for subjects with suicidal risks.

Impact

Impact of our robust plan will be that it manages lack of efficacy in monitoring and retaining important feedback of patient.

This aids people in recovery and helps them fight depression by tracking their progress over time.

A doctor who is available, responsive and uses our suggested approach is an absolute win-win.

Our approach uses frequent follow up visits(physically/online) to make sure the treatment plan is sound and working (and to modify the plan if needed).