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Personalized Prediction of Suicide Risk for Web-based Intervention

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According to SAMHSA, 80% of patients diagnosed with Borderline Personality Disorder report a history of suicide attempts, with deaths ranging between 8-10%. We employ a suicide severity questionnaire similar to one noticed in patient populations suffering from depression, schizophrenia, and other mental health conditions.

The heatmap is read as follows:

- Users in 'Crippling' overlap more with 'Addiction' than with 'SuicideWatch' and '0.95' against 'Addiction' and '0.90' against 'Opiates' implying users are likely addicted to alcohol, drugs or have joined Alcohol Anonymous for recovery and tend to share their experiences and opinions across 16 mental health subreddits. A subreddit is like a forum within social media for early web-based intervention.

The text of 500 randomly selected users posting in suicidewatch and other related mental-health subreddits were evaluated for suicide risk against the C-SSRS scale. Results show 9% of these users generated C-SSRS scores for users to be evaluated by Psychiatrists. This can lead to gold standard dataset adapting C-SSRS for social media content.

We have generated C-SSRS scores for users to be evaluated by Psychiatrists. This can lead to gold standard dataset adapting C-SSRS for social media content.

In our current study, we have utilized state-of-the-art deep learning and word embedding techniques supported by medical knowledge bases and a lexicon to automate C-SSRS fill-up in real-time. We have also utilized users engaging 'suicide watch' posts to share their experiences and opinions with other users in the forum. In our current study, we have utilized state-of-the-art deep learning and word embedding techniques supported by medical knowledge bases and a lexicon to automate C-SSRS fill-up in real-time.

The final mortality risk mortality risk model (Mortality Risk) was tested on the test dataset. It was found that the final mortality risk model had an AUC of 0.87. This indicates that the model is able to distinguish between users who are at high and low risk of suicide with a high degree of accuracy.

We thank the thoughtful support of Aaron Edwards and Dr. Valerie Shalin from the Department of Psychology at Wright State University in our study.

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