Personalized Prediction of Suicide Risk for Web-based Intervention

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**Motivation and Objective**

- Suicide is one of the leading causes of mortality worldwide, with mental health conditions being a major risk factor.
- Despite significant advancements in suicide prevention strategies, there is a pressing need for more effective methods.
- We propose a method to automatically determine suicide risk using social media data.

**Preliminary Findings**

- Reddit is a widely used and highly relevant platform for suicide-related discussions, with匿名 users sharing their experiences and opinions.
- Our dataset comprises of posts from 2002 to 2015, covering 16 mental health subreddits.
- Subreddits like 'CripplingAlcoholism' and 'SuicideWatch' show high relevance to suicide-related content.

**Contributions**

- Development of an extractive summarization module for generating semantic summaries ranked by relevance to C-SSRS.
- Employing a suicide severity questionnaire to assess the severity of suicide-related content.
- Extracting linguistic, temporal, homophily-based, metaphorical, and intent-based information from dialogues.

**Exploratory Data Analysis**

- Example sentence: "Ive also thought of committing suicide frequently because my Schizophrenia, Childhood wasn't..."

**Architecture and Approach**

- The data obtained from Reddit comprises of posts from 550,000 users, with each post containing multiple comments and replies.
- Our algorithm analyzes the content to identify suicide-related keywords.
- The suicide risk is determined using a classifier and a suicide severity questionnaire.

**Conclusion and Future Work**

- In our current study, we have analyzed state-of-the-art deep learning and neural embedding techniques supported by medical knowledge bases and a lexicon to enhance C-SSRS for social media.
- In the future, we plan to incorporate other features such as user demographic information to improve the accuracy of the suicide risk prediction.

**References**

2. Lin et al., "Labeling Mental Health-Related Content in Social Media Tweets Using Semantic Representation and Textual Features" (2016).