Sentiment analysis for detecting suicidal youths' positive and negative encounters with public service providers

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Paper Abstract

Despite a long-term downwards trend in suicide rates, Finland still experiences a higher prevalence of suicide compared to many other EU countries (Eurostat, 2024). Investigating the life courses of young people who have either attempted to or have committed suicide can yield new knowledge that can be used to influence policies and mitigate the effect of negative life trajectories or completely prevent them. Employing a broader framework of social autopsy, we examine the social and political conditions surrounding suicide incidents.

Our methodology involves 20 semi-structured interviews with young adults who have attempted suicide and family members of young persons who have committed suicide. As the data involves a wide spectrum of emotional and valuated expressions, we apply the novel method of automated sentiment analysis to detect youths' encounters with service providers and classify them as positive, negative, and neutral. Sentiment analysis has widely been used in classifying product reviews and customer feedback, but more recently also for more varied tasks, such as detecting possible markers mental states such as depression or anxiety in social media posts (Tana, Shcherbakov & Espinosa-Leal, 2022). In our work, this method complements more traditional qualitative methods of close reading, thematic analysis and narrative analysis. Given the sensitive nature of our datasets, it is critical that machine learning models can be run locally in a secure environment. As the interviews were conducted in Finnish, we utilise the FinBERT model fine-tuned with FinnSentiment dataset. FinnSentiment consists of 27,000 polarity-annotated sentences drawn from the Suomi24 social media corpus (Lindén, Jauhiainen & Hardwick, 2023).

In this presentation, we will discuss the pilot results that demonstrate how sentiment analysis can complement the methodological toolkit of social autopsy. We will highlight the advantages and constraints of utilizing a machine learning model trained on social media corpus for the purpose of analysis of interview data. Our work is a part of the Young Despair research project that, in addition to qualitative interviews, utilize register data and official records including police reports, coroner's autopsies, and forensic toxicology findings in studying young peoples' suicidality. All these concerted efforts aim to enhance our understanding of the multifaceted determinants contributing to youths' suicidal

behaviors, thereby informing targeted intervention strategies and policy initiatives aimed at suicide prevention.

Keywords: suicide, young people, sentiment analysis, machine learning, research interviews, sensitive data.

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