The Opioid-Abuse Predictor

Names
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Background and Introduction

The opioid epidemic has had severe consequences on public health, leading to hundreds of American deaths daily and burdening the health care system. Henceforth, there is a necessity of having an effective tool to identify individuals at risk of aberrant drug-related behavior (ADRB). However, traditional tools like the Opioid Risk Tool (ORT) have severe limitations due to self-reported measures. Meanwhile, machine-learning algorithms, particularly recurrent neural networks (RNNs), offer a new approach to analyze this data. RNNs have the unique ability to consider temporal variations in medications, conditions, and other factors. Building a machine learning model that utilizes RNNs would be highly effective in identifying individuals at risk of (+ opioid).

Methods

Through SQL queries we retrieved patient time-series data of conditions and medications from Research All of Us. After selecting specific conceptual features from Burek et al. and other sources we created a feature matrix of patient-visit information. We then trained an LSTM RNN model using our chosen features.

Objectives

The Opioid-Abuse Predictor aims to offer clinical decision-making support in identifying individuals at risk of abusing opioids. Its purpose is to enhance patient safety by providing more informed guidance to providers when prescribing opioids. The Opioid-Abuse Predictor aims to mobilize Research All of Us EHR data. The predictor aims to serve as a modern and user-friendly foundation for future research endeavors. The Opioid-Abuse Predictor aims to apply advanced technologies such as LSTM RNNs, and factor analysis to explore the critical temporal dependencies among medication, procedure, lab results, and diagnosis histories, leading to more precise predictions of opioid abuse.

Results

What did you find?

What did you learn?

You may want to present any relevant charts or graphs here if applicable.

References

Include citations for any referenced work

Future Directions

Future researchers are encouraged to explore genetic variables that contribute to the determination of a person's susceptibility to abusing opioids. By investigating the genetic aspects, a more comprehensive understanding of the underlying factors influencing opioid abuse can be attained. Moreover, it is essential for researchers to incorporate more sophisticated and technical approaches in selecting their factors for analysis. Emphasizing a critical evaluation of these factors can lead to more confident conclusions.

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