Converted psychological evaluation reports into OMOP CDM 6.0. as a stepping stone of psychiatric CDM expansion, which worked fine to assess and predict self-harm behaviors. But still a long way to go..

INTRO:
- This study aims to develop the prediction model of self-harm behaviors using psychiatric CDM.
- The psychiatric CDM is not well established yet. Thus, we started with psychological evaluation reports as a preliminary analysis.

METHODS
- We identified self-harm or suicidal cases by utilizing admission notes in the Emergency Department at Ajou University Medical Center from 2012-2017.
- Then linked psychological evaluation reports, if they existed.
- Converted them into OMOP CDM V.6.0; quantitative scores to Observation and Measurement table, narrative textual data to Note and Note_NLP table.
- Identified univariate or latent factors associated with the development of self-harm behaviors, and developed the predictive model.
- With quantitative scores, applied;
  - Principal component analysis
  - Hierarchical clustering analysis
  - LASSO logistic regression model
  - Gradient boosting machine model
  - Random Forest
- With narrative textual data, applied;
  - Natural Language Processing
  - Vanilla RNN (recurrent neural network)
  - LSTM (long short term memory) RNN

RESULTS
- A total of 663 subjects were identified, 256 psychological reports were linked, and 133 had at least one self-harming event.
- Only 20.3% of concept ID was found from standard vocabularies.
- Analysis with textual data (LSTM: accuracy 76%) performed better than with quantitative scores (Random forest: accuracy 62%) for predicting self-harm behaviors.