

NYSPI Biostatistics Seminar Series¹

Improved Prediction of Risk of Suicide & Suicide Attempt

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3:30-4:30pm, New PI 6th Floor Multipurpose Room (6602)

Abstract

Accurate prognostic models for evaluating the risk of future suicide attempt in mood disorders would allow clinicians to identify patients in need of more intensive treatment without prescribing unnecessary treatment for patients less likely to attempt suicide. However, obtaining accurate predictions of suicide risk proved to be one of the hardest problems in psychiatric research: despite the identification of many statistically significant risk factors, their predictive power can be underwhelming. In this talk I will describe a consistent approach to the problems of model building and validation and compare the predictive performance of statistical and machine learning models built to predict short- and long-term risk of suicide attempt in an observational study performed here at NYSPI, and discuss some of the statistical and scientific issues that we encountered. Topics will include the use of measures of state and trait, stress and diathesis, clinical and biological measures, the combination of cross-sectional and longitudinal data, including nonlinearities in the model, choosing the right criteria for evaluation of accuracy, and the relative advantages of statistical and machine learning techniques in predicting suicidal behavior. Finally, I will present evidence that improving our predictions models is now feasible and outline a plan for better methodology for building prognostic models that takes full advantage of modern data analysis techniques and modern technology

Biographical Note

Dr. Hanga Galfalvy has graduated in 2000 with a PhD in Statistics from the University of Illinois. After a postdoctoral fellowship in a leading machine learning research group, she has been working for 11 years in the Department of Psychiatry at Columbia University as a Postdoctoral Research Fellow and then an Assistant Professor of Clinical Neurobiology. She

¹ The PI Biostatistics Seminar Series is held on Tuesdays at New York State Psychiatric Institute. If you are interested in receiving regular announcements for our seminars in the future, or if you need further information, please contact Kelly Roska (roskake@nyspi.columbia.edu, (212) 543-5589).

has recently finished work on an NIMH K25 award for the study of statistical methodology for predicting suicide attempts, and has worked as a co-investigator or statistician on several observational and treatment studies of suicidal behavior. Her methodological interests include the evaluation of predictive performance of statistical and data mining models, censored regression models, analysis of high-dimensional genetic data, and her psychiatric research focuses on predictive models for suicide attempts, the genetic basis for suicide and the effect of the interaction of stress and trait variables on the risk of suicide and suicide attempts.