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## **Applying an Ensemble Classification Tree Approach to the Prediction of Completion of a 12-Step Facilitation Intervention With Stimulant Abusers.**

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### **Abstract**

**Aims:** The purpose of this study was to explore the selection of predictor variables in the evaluation of drug treatment completion using an ensemble approach with classification trees. The basic methodology is reviewed, and the subbagging procedure of random subsampling is applied. **Methods:** Among 234 individuals with stimulant use disorders randomized to a 12-step facilitative intervention shown to increase stimulant use abstinence, 67.52% were classified as treatment completers. A total of 122 baseline variables were used to identify factors associated with completion. **Findings:** The number of types of self-help activity involvement prior to treatment was the predominant predictor. Other effective predictors included better coping self-efficacy for substance use in high-risk situations, more days of prior meeting attendance, greater acceptance of the Disease model, higher confidence for not resuming use following discharge, lower Addiction Severity Index (ASI) Drug and Alcohol composite scores, negative urine screens for cocaine or marijuana, and fewer employment problems. **Conclusions:** The application of an ensemble subsampling regression tree method utilizes the fact that classification trees are unstable but, on average, produce an improved prediction of the completion of drug abuse treatment. The results support the notion there are early indicators of treatment completion that may allow for modification of approaches more tailored to fitting the needs of individuals and potentially provide more successful treatment engagement and improved outcomes. (PsycINFO Database Record (c) 2014 APA, all rights reserved).

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