1. No.
   2021T005

2. Title
   Effect of Nicotine Dependence on Brain Structural and Functional Abnormalities in Gambling Disorder

3. Period
   2021-2025

4. Summary
   Gambling disorder (GD) is often comorbid with nicotine dependence, and both GD and nicotine dependence have been reported to exhibit structural and functional brain abnormalities. In this study, we investigated the influence of nicotine dependence on brain alterations in GD and compared brain characteristics across GD, schizophrenia (Sz), and methamphetamine use disorder.

   Resting-state fMRI data was collected from 83 patients with GD and 97 healthy controls. Using a machine learning approach, we developed a GD classifier based on functional connectivity patterns. The classifier showed statistically significant discriminative performance. No significant correlation was found between the diagnostic probability derived from the classifier and the degree of nicotine dependence, suggesting that the classifier was not significantly affected by nicotine dependence.

   The GD classifier and a similarly constructed Sz classifier were applied to a dataset including individuals with methamphetamine use disorder. Among these individuals, those with short-term psychosis exhibited patterns resembling addiction, whereas those with long-term symptoms exhibited patterns resembling Sz. These results are consistent with diagnostic criteria based on clinical symptoms and previous empirical studies, supporting the validity of both frameworks.