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Source

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Abstract

This study investigates the relationship between three different cognitive processes underlying the Iowa Gambling Task (IGT) and adolescent smoking behaviors in a longitudinal study. We conducted a longitudinal study of 181 Chinese adolescents in Chengdu City, China. The participants were followed from 10th to 11th grade. When they were in the 10th grade (Time 1), we tested these adolescents' decision-making using the IGT and working memory capacity using the Self-ordered Pointing Test (SOPT). Self-report questionnaires were used to assess school academic performance and smoking behaviors. The same questionnaires were completed again at the 1-year follow-up (Time 2). The Expectancy-Valence (EV) Model was applied to distill the IGT performance into three different underlying psychological components: (i) a motivational component which indicates the subjective weight the adolescents assign to gains vs. losses; (ii) a learning-rate component which indicates the sensitivity to recent outcomes vs. past experiences; and (iii) a response component which indicates how consistent the adolescents are between learning and responding. The subjective weight to gains vs. losses at Time 1 significantly predicted current smokers and current smoking levels at Time 2, controlling for demographic variables and baseline smoking behaviors. Therefore, by decomposing the IGT into three different psychological components, we found that the motivational process of weight gain vs. losses may serve as a neuropsychological marker to predict adolescent smoking behaviors in a general youth population.

KEYWORDS:

EV model, Iowa Gambling Task (IGT), adolescents, decision-making, longitudinal study, smoking

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