

DELAY DISCOUNTING AND SUBSTANCE USE IN ADOLESCENTS

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This study examined the relationship between Delay Discounting (DD) and the initiation and frequency of substance use (tobacco, alcohol and marijuana) among secondary school students in British Columbia.

Delay Discounting and Substance Use:

Delay Discounting (DD) is the decline in value of a reward as a function of the delay to its receipt that can be measured by assessing the extent to which subjects devalue the delayed reward in order to receive the award immediately. Higher rates of discounting is a potential risk factor for substance abuse and dependence¹. This study examined the relationship between delay discounting and the initiation and frequency of substance abuse (tobacco, alcohol and marijuana) among secondary school students in British Columbia.

British Columbia Adolescent Substance Use Survey (BASUS):

The British Columbia Adolescent Substance Use Survey (BASUS) is a web-based prospective cohort study of adolescent substance use that followed a group of approximately 3000 teenagers in 65 BC high-schools since October 2009. In each wave, students completed a wide range of questions regarding family, community, school, and peers, as well as their attitudes and experiences with alcohol, tobacco, and marijuana (for more information about the study please go to <http://www.chrisgrichardson.ca/basus/>).

The results of this poster are based on the data from Waves 7 of the study (N=1142) collected in spring 2013 when students were in grades 10 and 11.

Measurements:

Delay Discounting: We developed an assessment that was based on a series of responses to a hypothetical discounting scenario¹ to assess the tendency of adolescents to discount a delayed monetary reward of \$100 over a period of 1-year, 1-month, and 1-week. The area under the curve was calculated for each participant's DD responses and coded into quartiles³.

Substance Use: Previous initiation and recent frequency of substance use (tobacco, alcohol and marijuana) during the 30 days prior to the survey were assessed with self-report questions.

Data Analysis:

To examine the relationships between delay discounting and substance use, the area under the discounting curve was calculated for each participant² and subjects were coded into quartiles. This variable was then included in a logistic regression model predicting the initiation of

substance use while controlling for sex, age, maternal education, and ethnicity. Chi-square tests were used to examine the relationships between DD quartiles and frequency of substance use.

Results:

Most of the students were either 15 (37%) or 16 (57%) years old. Of all participants, 48% described themselves as White, 10% Aboriginal, 39% Asian, and 3% were classified as other. The rate of maternal education was 7% Below high school, 21% High school, 29% Some college or trades, and 43% Undergraduate or above.

Compared to participants in the lowest DD quartile, being in the second, third or fourth quartile was associated with greater odds of having initiated tobacco use (OR= 1.72, 2.08, and 1.96, respectively, $p < .05$), binge drinking (OR= 1.55, 2.17, and 1.48, respectively, $p < .05$) and marijuana use (OR= 2.18, 2.53, and 2.11, respectively, $p < .05$). Among those who had initiated substance use, DD was not related to frequency of use at $p < .05$.

Conclusion:

These results suggest that higher delay discounting is an important indicator of increased risk for the earlier initiation of substance use. The lack of a significant relationship between DD and frequency of use may be due to the early stage of their substance use trajectory and an age-related limit on the opportunity for adolescents to access substances; particularly lack of legal access to tobacco and alcohol. Results of this study contribute to the understanding of risk factors for early substance use and may be useful in targeting particularly high risk adolescents for tailored interventions.

References:

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