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Predicting restraint using a laboratory model of smoking abstinence

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Abstract

Delay discounting describes how individuals tend to prefer smaller immediate rewards over larger delayed rewards, and high levels of discounting are predictive of various disorders, including substance use disorders (SUDs). While there has been a great deal of research examining willingness to wait for the desired outcome (e.g., SUD recovery), there has been relatively little research on sensitivity to other costs associated with cessation efforts, such as an individual's willingness to exert and sustain the cognitive effort of sustained resistance to substance use.

Indeed, it is possible that the well-documented relationship between cessation success and delay discounting is partly mediated by an individual's aversion to sustained cognitive effort. Accordingly, this study examined whether willingness to exert effort was related to a smoker's ability to defer smoking. Participants were 32 adult smokers contemplating cessation, who attended two separate experimental sessions. Participants performed a sustained attentional task and a working memory task, each for 1 minute, then were asked to choose between an amount of money ($0-$26) available for no effort, or $25 for performing one of the tasks for a set period (1-20 minutes) with >80% accuracy. Afterward participants were given a 2-hour window where they could either smoke or receive progressively more money over time, and the time before smoking was recorded as their "lapse time".

Indifference points were calculated to determine at which point participants were ambivalent between no-effort or effortful choices. Indifference points decreased as a function of cognitive effort across tasks. However, the area under the discount curves was unrelated to smoking lapse times. There was found to be no relationship between cognitive effort discounting and this measure of lapse times. Future research will

investigate the effect of cognitive effort discounting on smoking lapse times outside of the laboratory setting.