

Measures of Impulsivity and Decision-Making: Emerging Research Results

Computerized assessments of impulse control deficits show promise within Canadian federal offenders.

Why we are doing this study

Given the importance of impulse control deficits in both addictive disorders and criminal behaviour, it is important to develop novel ways of assessing these deficits. The current study utilized a multidimensional approach to quantifying impulse control behaviours among federal offenders and aims to link performance on these measures with history of addictive behavior, offender risk, and criminal history. This research was supported by a Memorandum of Understanding between the Peter Boris Centre for Addictions Research and the Correctional Service of Canada. The preliminary results described here focus on the feasibility of using technology-based assessments of impulsivity in federal correctional institutions and to explore differences in impulse control deficits by gender and offender or community samples.

What we are doing

Data collection occurred between July 2017 and April 2019 at Warkworth Institution and Grand Valley Institution for Women resulting in 75 offender participants (39% women). During this same period, 16 male non-offender participants were also assessed on the same measures. Five computerized tasks assessing impulse control and decision-making were administered to all participants: (1) the Balloon Analogue Risk Task, (2) the Iowa Gambling Task, (3) the Stroop Colour-Word Task, (4) the Delay Discounting Task, and (5) the Go/No-Go Task. Further data collection and analysis efforts are underway.

What we have found so far

The use of computerized assessments of impulse control deficits were found to be a feasible endeavor within federal correctional institutions. Participants generally reported positive comments and no major negative experiences, although a minority of participants made comments related to literacy difficulties or limited computer experience.

There were no significant differences in assessed impulse control deficits in men and women offenders. As such, men and women offenders were combined into a single group when comparing to the non-offender sample.

The Delay Discounting Task requires participants to make a series of hypothetical choices between smaller-immediate and larger-delayed monetary rewards. Offenders were more likely to take the immediate-smaller rewards and less likely to delay gratification for the larger-delayed monetary rewards in comparison to the non-offender sample.

Conversely, offenders showed lower risk-taking on the Balloon Analogue Risk Task. This task had participants play a game of pumping up a virtual balloon that had an unknown air capacity. Each successful pump earns an increasing number of points, but all points are lost if the balloon pops.

Performance on the remaining tasks was generally comparable; however, it is important to caution that several other effects were approaching statistical significance. As data collection continues, these effects may become statistically significant with more statistical power.

What it means

These preliminary results show that it is feasible to conduct computerized impulsivity and decision-making assessments within federal institutions. There are some indications of differences between offender and non-offender samples regarding impulse control deficits; however, additional data collection and analysis is necessary before any firm conclusions can be drawn. When completed, the results of this research could have important implications for our understanding of the relationships between impulsivity, addiction, and criminal behaviour.

For more information

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Prepared by: Kaitlyn Wardrop