

## RESEARCH PROJECT SUMMARY

Addiction, Neuroscience, and Stigma: Ethical, Legal and Social Issues

\$35,000

1. Project Title
2. Summary of the research project. Include the specific hypothesis of the research and describe the candidate's role on the project. This summary should be written in general scientific language.

### **Project Title: Addiction, Neuroscience, and Stigma: Ethical, Legal, and Social Issues.**

Mental illness and addiction are highly stigmatized conditions affecting the health status of one out of four Canadians during their lifetime. Both scientists and mental health advocates have championed that a biological understanding or a brain disease view of addiction would reduce stigma<sup>1</sup>. A vast literature about stigma and addiction exists from research in psychiatric genetics, but comparably less exists in the neurosciences. While the public may consider addiction a medical illness, stigmatizing notions of abnormality persist, even among mental health providers. Neuroscientific explanations such as text-based descriptions and images of brain function are expected to interact with these perceptions<sup>2,3</sup>. However, the extent to which neuroscience research and brain imaging studies will impact addiction-related stigma, and the valence of this impact, is currently unknown.

To address this, I will test the hypothesis that *a brain-based understanding of addiction will reduce stigma*. I will study how neuroscientific explanations of addiction, with and without brain images, shape how people: 1) frame addiction as a treatable illness; 2) perceive responsibility for developing and overcoming addiction; 3) conceptualize discrimination, stigma, and social distance.

Methods: This research will be conducted in two phases: a large-scale survey and in-depth interviews. Through advertisement in local newspapers fliers posted in outpatient mental health clinics, three groups will be recruited: 1) self-reporting adults living with addiction; 2) adults with no history of addiction; 3) mental health care providers (e.g., psychiatrists, social workers, nurses). Participants will be presented with four vignettes, in counterbalanced order, describing an individual with a heroin addiction. The vignettes are identical except for one independent variable: i) a neuroscientific description of addiction, ii) a neuroscientific description of addiction plus a brain scan representing addiction, such as Figure 2 from Daglish et al<sup>4</sup> demonstrating differences in cortical activation in opiate-dependent participants; iii) a brain image; iv) neither a neuroscientific description nor a brain scan. Participants will then rate on 5-point Likert scales a target of 20 questions about treatment of addiction and moral responsibility. The final survey will be based on pilot testing and will require approximately 10 minutes to complete.

I will use 3 x 4 (group x condition) between subjects Analyses of Variance (ANOVA) to test main effects and differences among the three groups on attitudes about treatment and moral responsibility depending on the information conditions. Demographic, cultural, and gender variables will be factored into the analysis. Using G\*power, a total sample of 225 is required to find a moderate effect ( $f = 0.25$ ), with 80% power and  $\alpha = 0.05$ . I will recruit a minimum of 75 participants per group.

Survey participants will be invited to self-identify for a follow-up, semi-structured interview to further elucidate perceptions about the different stigma types of addiction neuroscience information, and how that perception may impact notions of identity and orientation towards treatment. Following well-established qualitative methods for interview data<sup>5</sup>, a target 20 people from each group ( $N = 60$ ) will be interviewed until saturation is achieved. Interviews will be audio recorded and transcribed, and analyzed using grounded theory<sup>6</sup> process for within-group and between-group themes and variations. Results will be delivered in the form of traditional scholarly publications, as well as through direct outreach to the community through web postings, opinion editorials, and public presentations.

Anticipated Outcomes: Results will provide a new lens for understanding addiction, mental illness, and population health. Outcomes may help shape the content and message of future anti-stigma efforts.

Candidate's Role: Under the supervision of Dr. Judy Illes and Dr. Peter Reiner, I will have a primary role in every stage of the project: research design, participant recruitment, data analysis, data interpretation and authorship.

## REFERENCES

1. Volkow, N.D. & Li, T.K. 2004. Drug addiction: The Neurobiology of Behaviour Gone Awry. *Nature Reviews Neuroscience* 5, 963-970.
2. Phelan, J.C., Cruz-Rojas, R., Reiff, M. 2002. Genes and Stigma: The Connection Between Perceived Genetic Etiology and Attitudes and Beliefs About Mental Illness. *American Journal of Psychiatric Rehabilitation*. 6 (2), 159-185.
3. Weisberg, D.S., Keil, F.C., Goodstein, J., et al. 2008. The Seductive Allure of Neuroscience Explanations. *Journal of Cognitive Neuroscience*, 20(3), 470-477.
4. Daglish, M.R.C., Weinstein, A., Malizia, A.L., et al. 2001. Changes in Regional Cerebral Blood Flow Elicited by Craving Memories in Abstinent Opiate-Dependent Subjects. *American Journal of Psychiatry*, 158, 1680-1686.
5. Creswell, J. W. 2003. *Research design: Qualitative, Quantitative, and Mixed Methods Approaches*. Thousand Oaks: Sage.
6. Strauss, A., & Corbin, J. 1998. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques* (2nd ed.). Thousand Oaks: Sage.