Does delay discounting really relate to Body Mass Index?

Does valuing smaller sooner rewards over longer later rewards correlate with your Body Mass Index (BMI)? A large (heterogeneous) body of literature has mixed findings, but multiple meta analyses conclude that there is a small relationship between temporal discounting of monetary rewards and BMI. I will describe a study (N=381) which goes beyond previous methods - we evaluate 3 possible models: 1) A simple correlation between discounting and BMI, 2) a main effects model which accounts for the confounding effect of age, and, 3) a process model stating that discount rates moderate the rate at which BMI increases with age. We measured discounting of delayed monetary rewards and also weight loss rewards - the idea being that those who favour immediate weight loss may pursue counter-productive dieting strategies (Lim & Bruce, 2015). In addition to the objective outcome measure of BMI, we measured subjective body status with the Stunkard Figure Rating Scale. Our results show the only predictor of BMI in our dataset is age. Bayesian methods allow us to conclude that we have evidence against each of the 3 models tested. The talk will discuss how our use of Bayesian methods avoids potential issues with null results under a Frequentist approach. Additionally, I discuss how we have evaluated the relative merits of a single large study versus meta analyses of a large but heterogenous literature. In particular, the results of a Bayesian meta analysis shows discount rates only account for 2.25% of the variance in BMI. However there is extremely strong evidence for additional study-level variance, meaning that the literature as a whole is not a set of independent measurements of the same underlying discounting/BMI relationship. In such cases, meta-analytic effect sizes may in fact have no meaningful interpretation. Overall we ague that a relationship between discounting of money or weight loss and BMI is not on a secure footing, and attempts to use discounting as a therapeutic target for those with very high or low BMI may not be fruitful.

Date/Time

Thursday 21\textsuperscript{st} November 2019

2.30 pm – 3.45 pm

Location

Library, Wolfson 1