aversion also predicts higher cognitive level illusory pattern perception, defined as belief in conspiracy theories. Experiment 3 (347 subjects) shows, through two uniquely timed questionnaires, that ambiguity aversion increases significantly from before to after the lockdown (due to the COVID-19 pandemic) for a sample of over 300 subjects. Finally, this difference in ambiguity aversion is no longer significant when we control for the drop in regular social contact over this period.

R-28: Decision-Making Among Individuals Reporting a COVID-19 Infection: Time, Probability, and Ambiguity Preferences

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Overview: The COVID-19 pandemic imposes a universal threat to individuals' well-being, with individual risks of infection varying based on medical, social, and economic determinants of health. One question that has yet to examined is whether individuals' decision-making may also determine, or be influenced by, infection risk. Based on the previous literature linking economic choice patterns to health-related and clinical outcomes, here we directly test whether preferences for risk and ambiguity, as well as impulsive choice, differ in individuals as a function of COVID-19 infection. Methods: Between April 8 and July 22, 2020, a total of 232 participants consented to participate in "Our Covid Story" (www.datacubed.com/ourcovidstory). Participants were recruited via Facebook advertising and e-mail listservs, focused on the New York City area. Participation involved downloading a mobile application for administration of tasks and surveys, and completing 5-10 minutes of a rotating battery of assessments. These assessments included a complete demographic battery, self-report instruments, and gamified decision-making tasks, which included the 27-item Monetary Choice Questionnaire to assess temporal discount rate, and an abbreviated (35-item) version of the Levy task which distinguishes between preferences in risk and ambiguity. Results: Overall, 6% of individuals reported a likely or confirmed case of COVID-19. To assess decision-making, we calculated the proportion of immediate choices in the Monetary Choice Questionnaire to determine degree of impulsive choice; similarly, we calculated percent of lottery choices in the risk and ambiguity trials of the Levy task. In cross-sectional analyses, we observed that individuals who reported a positive history of COVID-19 made fewer risky lottery choices ($t=-2.81$, $p = 0.01$) and made fewer ambiguous lottery choices ($t = -2.22$, $p = 0.04$), suggesting lower risk and ambiguity tolerance in participants reporting COVID-19 infections. We additionally observed a small difference in the proportion of impulsive choices between these groups, with those reporting a history of COVID infection showing higher levels of impulsivity, although this group difference did not reach statistical significance ($t=1.23$, $p = 0.26$) in our initial sample. Discussion: Our longitudinal data collection is ongoing, to determine whether differences in decision-making between those who report a history of COVID and those who do not are cause or consequence of the disease. Our preliminary data support the application of econometric approaches to

understanding decision-making in COVID. Disclosure: PWG is an officer and stockholder in Datacubed Health

R-29: Neural correlates of reaction time variability in the human brain

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Introduction: Reaction-time (RT) variability is a fundamental property of decision-making, but the underlying mechanisms in the human brain are not fully understood. Using intracranial EEG (iEEG), we tested the hypothesis that RT variability in a simple sensory-motor task is reflected in trial-by-trial fluctuations of distributed, motor-related ramping signals, as predicted by accumulate-to-bound decision models.
 Methods: We recorded iEEG data from 23 patients with medically-refractory epilepsy while they performed a stimulus-detection task with long (1500 ms) or short (500 ms) delays before stimulus onset. We extracted high-frequency activity (HFA, 70-200 Hz) as a measure of local population firing rates from 2,709 widely distributed electrodes throughout cortex and the medial temporal lobe. We identified electrodes with motor-related signals based on temporal relationships between local peaks in neural activity and button-press RTs. We related features of these motor-related neural activity patterns, including pre-stimulus baseline activity, pre-response buildup rate and peak activity to RTs using multi-variate regression at each of these electrodes. We tested the significance of the resulting regression coefficients by averaging the associated t-statistics within each subject and studying their distribution across subjects.
 Results: Subjects showed faster RTs during long-delay trials compared to short-delay trials, with substantial trial-to-trial RT variability for each condition ($t(22) = 5.57$, $p < 0.001$; mean +/- s.d. = 419.3 ms +/- 55.0 vs. 457.02 +/- 61.0). Across all 23 subjects, we identified 216/2709 electrodes from multiple brain areas with motor-related activity that closely predicted RTs on a trial-by-trial basis (8.7%; χ^2 statistic = 16727, $p < 0.001$; n = 21/23 subjects). Across these electrodes, we found RT-related neural fluctuations in several neural features. Specifically, faster RTs were associated with higher pre-stimulus baseline activity ($t(20) = 7.81$), faster pre-response buildup rates ($t(20) = 8.27$), and lower pre-response peak activity ($t(20) = 8.14$, all p-values < 0.001, False Discovery Rate corrected). We found similar RT-related changes in neural activity when considering only short or long delay trials.
 Significance: Our finding that certain distributed, motor-related ramping signals in the human brain co-vary with RT is generally consistent with simple accumulate-to-bound decision models. Our findings of additional, within-condition RT-related fluctuations in baseline and peak activity suggest these processes include additional degrees of freedom that can contribute to stochastic variability in RT.

R-30: The Evolution of Self-Control in the Brain