

## **Risk and Emotion: Measuring the Effect of Emotion and Other Visceral Factors on Decision Making under Risk**

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**Abstract :** Background: The science of modelling choice preferences has evolved over centuries into an interdisciplinary field contributing to several branches of Microeconomics and Mathematical Psychology. Early theories in Decision Science rested on the logic of rationality, but as it and related fields matured, descriptive theories emerged capable of explaining systematic violations of rationality through cognitive mechanisms underlying the thought processes that guide human behaviour. Cognitive limitations are not, however, solely responsible for systematic deviations from rationality and many are now exploring the effect of visceral factors as the more dominant drivers. The current study builds on the existing literature by exploring sleep deprivation, thermal comfort, stress, hunger, fear, anger and sadness as moderators to three distinct elements that define individual risk preference under Cumulative Prospect Theory. Methodology: This study is designed to compare the risk preference of participants experiencing an elevated affective or visceral state to those in a neutral state using nonparametric elicitation methods across three domains. Two experiments will be conducted simultaneously using different methodologies. The first will determine visceral states and risk preferences randomly over a two-week period by prompting participants to complete an online survey remotely. In each round of questions, participants will be asked to self-assess their current state using Visual Analogue Scales before answering a series of lottery-style elicitation questions. The second experiment will be conducted in a laboratory setting using psychological primes to induce a desired state. In this experiment, emotional states will be recorded using emotion analytics and used as a basis for comparison between the two methods. Significance: The expected results include a series of measurable and systematic effects on the subjective interpretations of gamble attributes and evidence supporting the proposition that a portion of the variability in human choice preferences unaccounted for by cognitive limitations can be explained by interacting visceral states. Significant results will promote awareness about the subconscious effect that emotions and other drive states have on the way people process and interpret information, and can guide more effective decision making by informing decision-makers of the sources and consequences of irrational behaviour.

**Keywords :** decision making, emotions, prospect theory, visceral factors

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