# Choices and Actions
## An Interplay of Behaviour, Uncertainty and Psychiatric Genetics

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**DOUBTS** often create misunderstanding, leaving a whiff of uncertainty within. Even though uncertainty is a common occurrence in science, how does uncertainty in science impact us? Have you ever had an experience of reading a news article online and articles that had contradictory information about science or left you feeling uncertain?

**Doubts, reasoning, and science for us**

*"If enough doubt can be raised about the relevant scientific findings, regulation can be avoided or delayed for years or even decades."*

Sam leads a busy life in a metropolitan city and tries to keep himself up-to-date with current events. Ever since he read the news on global warming and climate change, he has been concerned. One fine day, he came across information through the media that presented theories contradicting his prior notions about climate change. As he kept reading, with "uncertain" and "doubtful" science being highlighted, he felt bemused, and the uncertainty latched onto his mind. This turned him into a climate sceptic and eventually influenced his course of action.

**Looking into the chaos of scientific certainty**

Scientific certainty deals with the concept of looking for certainty in the findings of science. However, science is uncertain, and for important health problems, we do not have the luxury to wait for scientific certainties. As science is ever evolving, experimental and translational research is unfolding, and looking for certainty might not be the best course of action.

Public Health Action Amid Scientific Uncertainty: The Case of Restaurant Calorie Labeling Regulations, published in JAMA, highlighted that scientific knowledge can serve as the basis of both taking definitive actions, thus building policies, and of opposing any action. Preventive actions taken as interventions can have a contrary effect of increasing health issues. Also, preventive actions to mitigate any situation can face opposition based on incomplete scientific knowledge due to a reliance on and awaiting certainty in research findings. Thus, both premature and delayed actions by authorities can result in preventable injuries, losses, or death.

This, thus, warrants careful consideration of potential benefits and costs of any intervention, analysing available scientific evidence, and ancillary social considerations, leading to important decisions.

**Looking inside scientific uncertainty and its communication**

Scientific uncertainty is the "lack of scientific knowledge or disagreement over current knowledge." It can be categorised into different types, from epistemic uncertainty to causal uncertainty to an uncertainty reflecting expert disagreement. Epistemic uncertainty is uncertainty in the model of any scientific process, often due to a lack of knowledge or information. Whereas causal uncertainty arises from making false assumptions about relationships between different factors (variables). It also translates to not knowing or falsely associating causal factors with a particular event. Scientific findings can also reflect uncertainty through disagreements between the subject experts on a topic.

Is science uncertain? Yes! When we look at science, it is the best course of action to be prudent and not to presume the possibility of identifying the ultimate truth at any given time. Instead, we should rely on the fact that science is self-correcting over time.

Why is scientific uncertainty gaining traction in science communication? There have been several studies on this topic. To present a macro-view, "Re-examining Climate