Article type: Perspective

Home Page URL: https://www.alliedacademies.org/journal-of-psychology-and-cognition/

Cognitive biases: Understanding systematic errors in human thinking.

Lin Wei*

Department of Neurophysiology, Tsinghua University, China.

***Correspondence to:** Lin Wei, Department of Neurophysiology, Tsinghua University, China, E-mail: l.wei@tsinghua.edu

Received: 03-Oct-2025, Manuscript No. AAJPC-25-169452; **Editor assigned:** 04-Oct-2025, PreQC No. AAJPC-25-1694525(PQ); **Reviewed:** 18-Oct-2025, QC No AAJPC-25-1694525; **Revised:** 21-Oct-2025, Manuscript No. AAJPC-25-1694525(R); **Published:** 28-Oct-2025, DOI:10.35841/aajpc -10.4.305

Introduction

Cognitive biases are systematic patterns of deviation from norm or rationality in judgment, often resulting from the brain's attempt to simplify information processing. These biases influence how individuals perceive reality, make decisions, and interpret past events. While cognitive biases can be adaptive—allowing for quick judgments in complex environments—they often lead to flawed reasoning and decision-making errors. Originating from heuristics, or mental shortcuts, biases such as confirmation bias, availability heuristic, and anchoring bias are embedded in our daily cognitive functions, sometimes operating below conscious awareness [1].

Confirmation bias, for example, occurs when individuals favor information that confirms their existing beliefs while disregarding contradictory evidence. This bias reinforces preconceptions and limits openness to alternative perspectives. In social and political contexts, it leads to polarization and the entrenchment of group ideologies. The availability heuristic, on the other hand, causes people to judge the probability of events based on how easily examples come to mind. This can result in distorted risk perception, such as overestimating the likelihood of plane crashes after media coverage. Anchoring bias arises when individuals rely too heavily on an initial piece of information—the "anchor"—when making decisions, even if it is irrelevant or arbitrary [2].

The persistence of cognitive biases has significant implications for various domains, including clinical practice, legal judgments, and economic behavior. In healthcare, for instance, diagnostic errors may stem from a physician's reliance on initial impressions or familiar cases, leading to premature closure and misdiagnosis. In the legal system, jurors and judges may be swayed by irrelevant contextual cues or fall prey to hindsight bias when evaluating a defendant's actions. In financial decision-making, biases can fuel market bubbles or lead investors to hold onto losing stocks due to the sunk cost fallacy. Understanding these patterns is crucial for developing de-biasing strategies and improving judgment quality [3].

Cognitive neuroscience and psychology have increasingly focused on the neural underpinnings of cognitive biases. Functional MRI studies reveal that many biases are associated with activity in the prefrontal cortex, which is responsible for executive control, as well as the amygdala, which mediates emotional responses. This suggests that biases emerge not merely from logical flaws but from the interaction between emotional and rational brain

Citation: Wei L. Cognitive biases: Understanding systematic errors in human thinking. J Psychol Cognition. 2025;10(4):305.

systems. Evolutionary explanations propose that many biases were once adaptive in ancestral environments, promoting survival through swift decision-making, though they may now be maladaptive in complex, modern societies [4].

Efforts to mitigate cognitive biases involve increasing metacognitive awareness, fostering critical thinking, and implementing structured decision-making tools. Training individuals to recognize common biases can lead to modest improvements in reasoning, especially when feedback is provided. In organizational settings, introducing checklists, encouraging diverse viewpoints, and using algorithms for complex decisions can reduce susceptibility to bias. However, completely eliminating biases is unrealistic due to their deep cognitive roots. Instead, the goal is to reduce their negative impact by creating environments that support reflective thinking and informed judgment [5].

Conclusion

Cognitive biases are an integral aspect of human thinking, reflecting both the strengths and limitations of our mental architecture. While they can simplify complex decisions, they also distort reality and impair judgment. A deeper understanding of these biases—combined with strategies for mitigation—can lead to more accurate, fair, and rational decision-making across personal, professional, and societal domains.

References

1. Albanese A, Romito L. Deep brain stimulation for Parkinson's disease: where do we stand?. Front Neurol. 2011;2:33.
2. Cubo R, Åström M, Medvedev A. Optimization of lead design and electrode configuration in deep brain stimulation. Int J Adv Life Sci. 2016;8:76-86.
3. Galati S, Stefani A. Deep brain stimulation of the subthalamic nucleus: All that glitters isn't gold?. Mov Disord. 2015;30(5):632-7.
4. Skuban T, Hardenacke K, Woopen C, et al. Informed consent in deep brain stimulation–ethical considerations in a stress field of pride and prejudice. Front Integr Neurosci. 2011;5:7.
5. Spooner RK, Bahners BH, Schnitzler A, et al. DBS-evoked cortical responses index optimal contact orientations and motor outcomes in Parkinson’s disease. Parkinson's Disease. 2023;9(1):37.

Citation: Wei L. Cognitive biases: Understanding systematic errors in human thinking. J Psychol Cognition. 2025;10(4):305.