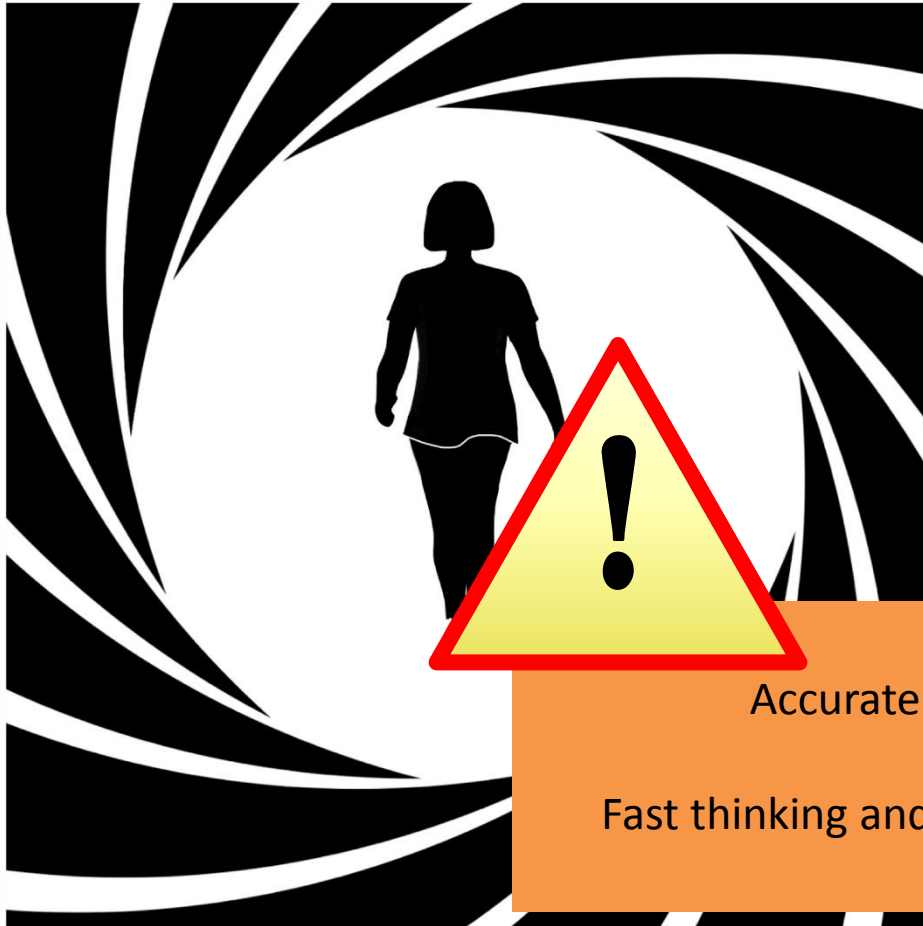


# Do you know if your assessments are biased?



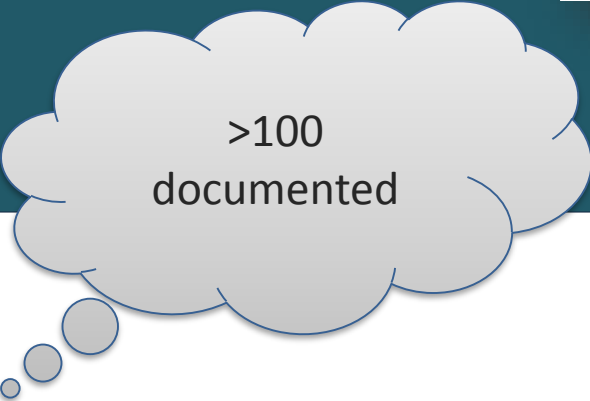
- ✓ *Fast thinking*
- ✓ *Accurate decisions*  
*(even with uncertain or minimal data)*
- ✓ *Pattern recognition*
- ✓ *Expertise*

... Flawed ...

Accurate until the moment we are wrong

Fast thinking and judgements are often under-pinned by cognitive biases.

# Cognitive biases



>100  
documented

## Order effects

Primacy or recency

where decisions are influenced by the order that information is received Crosskerry (2003)

## Framing

where decisions are influenced by language that depicts a 'fear of negative/loss' outcome or 'hope of positive/gain' Tversky & Kahneman (1981)

## Availability

where decisions are influenced by how easily we can recall frequency or probability Tversky & Kahneman (1974)

## Anchoring

where decisions are influenced by an initial numerical value Tversky & Kahneman (1974)

## Affect

where emotion influences perception and decision-making Pachur, Hertwig, Steinmann (2012)

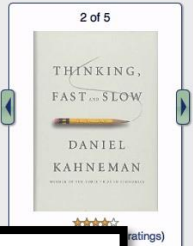


Daniel Kahneman

Overview Research Publications Files Contact

Books:

- Gilovich, T., Griffin, D., & Kahneman, D. (Eds.). (2002). *Heuristics and biases: The psychology of intuitive judgment*. New York: Cambridge University Press.
- Kahneman, D. (2011). *Thinking, fast and slow*. New York: Farrar, Straus and Giroux.
- Kahneman, D. (1973). *Attention and effort*. Englewood Cliffs, NJ: Prentice-Hall.
- Kahneman, D. (1999). *Thinking, fast and slow*. New York: Farrar, Straus and Giroux.
- Kahneman, D., Tversky, A. (1979). *Prospect theory: An analysis of decision under risk*. *Econometrica*, 47(2), pp. 263-291, March 1979.



**Judgment under Uncertainty: Heuristics and Biases**

Biases in judgments reveal some heuristics of thinking under uncertainty.

Amos Tversky and Daniel Kahneman

**Prospect Theory: An Analysis of Decision under Risk**

by Daniel Kahneman and Amos Tversky

*Econometrica*, 47(2), pp. 263-291, March 1979



**Reasoning the Fast and Frugal Way: Models of Bounded Rationality**

Gerd Gigerenzer and Daniel G. Goldstein

How Do People Judge Risks: Availability Heuristic, Affect Heuristic, or Both?

Thorsten Pachur University of Basel

Ralph Hertwig University of Basel and Max Planck Institute for Human Development, Berlin, Germany

Florian Steinmann University of Basel

REVIEW

**Cognitive Biases and Heuristics in Medical Decision Making: A Critical Review Using a Systematic Search Strategy**

J. S. Blumenthal-Barby, PhD, Heather Krieger, BA

**The Importance of Cognitive Errors in Diagnosis and Strategies to Minimize Them**

Pat Croskerry, MD, PhD

Sapostnik et al. *BMC Medical Informatics and Decision Making* (2016) 16:138 DOI 10.1186/s12911-016-0377-1

BMC Medical Informatics and Decision Making

RESEARCH ARTICLE

Open Access

**Cognitive biases associated with medical decisions: a systematic review**

Gustavo Sapostnik<sup>1,2,3\*</sup>, Donald Redelmeier<sup>3</sup>, Christian C. Ruff<sup>1</sup> and Philippe N. Tobler<sup>1†</sup>

**The Causes of Errors in Clinical Reasoning: Cognitive Biases, Knowledge Deficits, and Dual Process Thinking**

Geoffrey R. Norman, PhD, Sandra D. Monteiro, PhD, Jonathan Sherbino, MD, Jonathan S. Iigen, MD, Henrik G. Schmidt, PhD, and Silvia Mamede, MD, PhD

**Cognitive Sophistication Does Not Attenuate the Bias Blind Spot**

Richard F. West and Russell J. Meserve James Madison University

Keith E. Stanovich University of Toronto

The so-called bias blind spot arises when people report that thinking biases are more prevalent in others than in themselves. Bias turns out to be relatively easy to recognize in the behaviors of others, but often difficult to detect in one's own judgments. Most previous research on the bias blind spot has focused on bias in the social domain. In 2 studies, we found replicable bias blind spots with respect to many of the classic cognitive biases studied in the heuristics and biases literature (e.g., Tversky & Kahneman, 1974). Further, we found that **none of these bias blind spots were attenuated by measures of cognitive sophistication such as cognitive ability or thinking dispositions related to bias. If anything, a larger bias blind spot was associated with higher cognitive ability. Additional analyses indicated that being free of the bias blind spot does not help a person avoid the several classic cognitive biases.** We discuss these findings in terms of a generic dual-process theory of cognition.

Keywords: thinking biases, heuristics and biases, bias blind spot, cognitive ability

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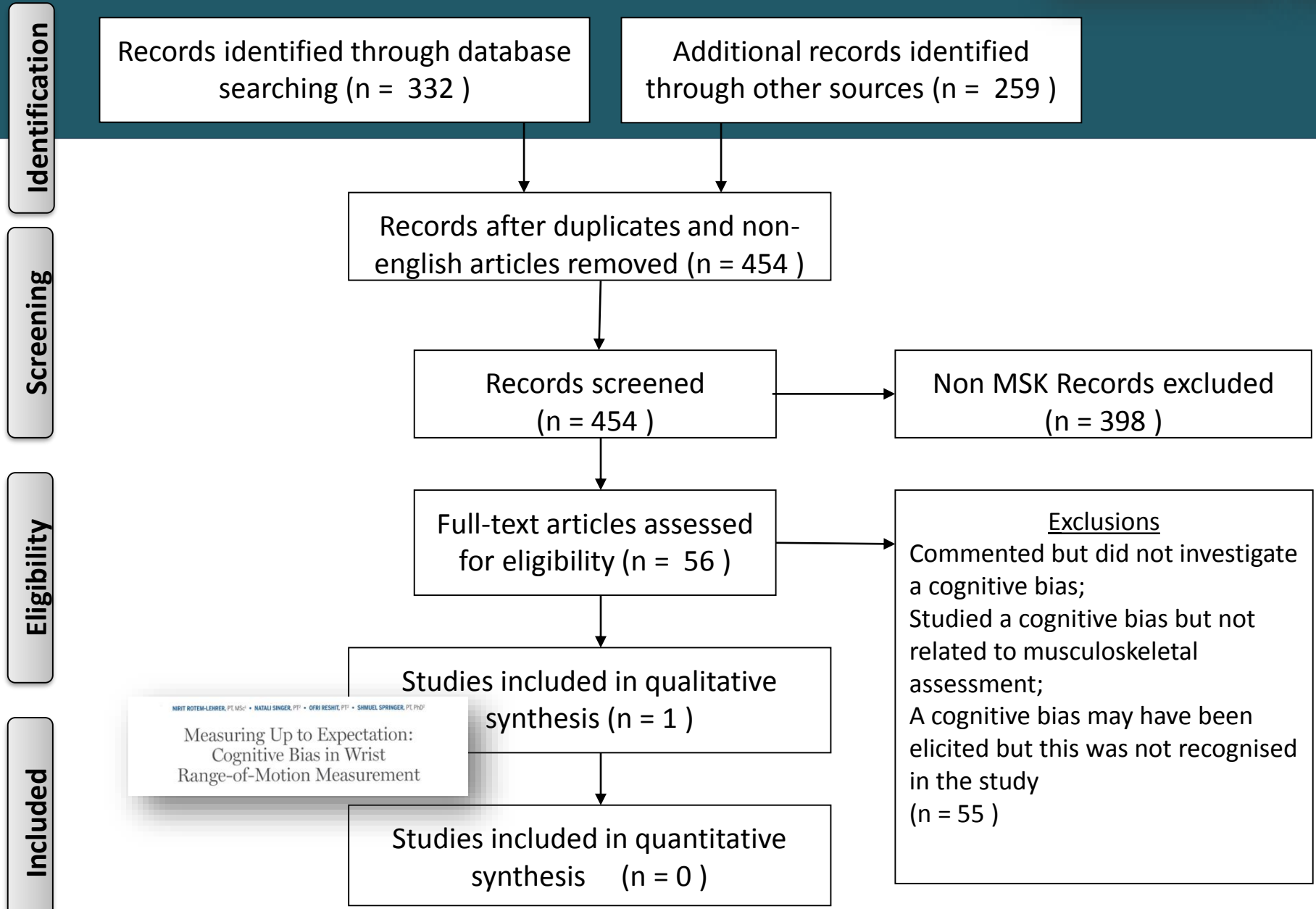


**Cognitive debiasing 1: origins of bias and theory of debiasing**

Pat Croskerry,<sup>1</sup> Geeta Singhal,<sup>2</sup> Silvia Mamede<sup>3</sup>

# Methods & Results

## PRISMA diagram



# Discussion & Conclusion

Mission: questions we need to investigate in physiotherapy

**Do I know whether the order in which information is presented influences assessment and decisions?**

*Order effects bias*

**Is it possible that emotions affect my perception and clinical decision-making?**

*Affect bias*

**Do I recall some prevalence figures for musculoskeletal problems more than I remember other figures?**

*Availability bias*

**How sure am I that my measurement decisions are not influenced by an initial figure?**

*Anchoring bias*

**Do I understand how *fear of negative/loss* language or *hope of positive/gain* language may affect decision-making?**

*Framing bias*