

Human Factors in Cause and Manner Determinations

Dr. Adele Quigley-McBride



Overview of Key Points



1. Potential for **unintentional biases** to shape judgments of ambiguous data.



2. Challenges associated with **communicating forensic results** to non-experts.





Why might cognitive bias occur?

Cognitive biases occur **automatically when there are:**

- insufficient relevant data to make a truly informed or objective decision
- and/or
- circumstances that prevent the proper analysis and evaluation of the available data.



Kassin et al. (2013) *JARMAC*;

Quigley-McBride et al. (2022) *FSI: Synergy*

Spellman et al. (2021) *FSI: Synergy*



Which data are (ir)relevant?

Task relevance is a *continuum*, not binary categories.

- *More relevant:* Medical tests and observations
(e.g., autopsy findings, medical history, etc.)
- *Less relevant:* Case info that is non-medical in nature
(e.g., investigative theories, witness statements, etc.)



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Bias is not inherently “bad”.

- Cognitive bias is NOT intentional prejudice or dishonesty—occurs **outside the decision-maker's awareness**.
- Cognitive bias **affects everyone**—even the most diligent and hard-working experts.
- Cognitive bias lowers **consistency**—two experts may look at same body but form different opinions of cause/manner.

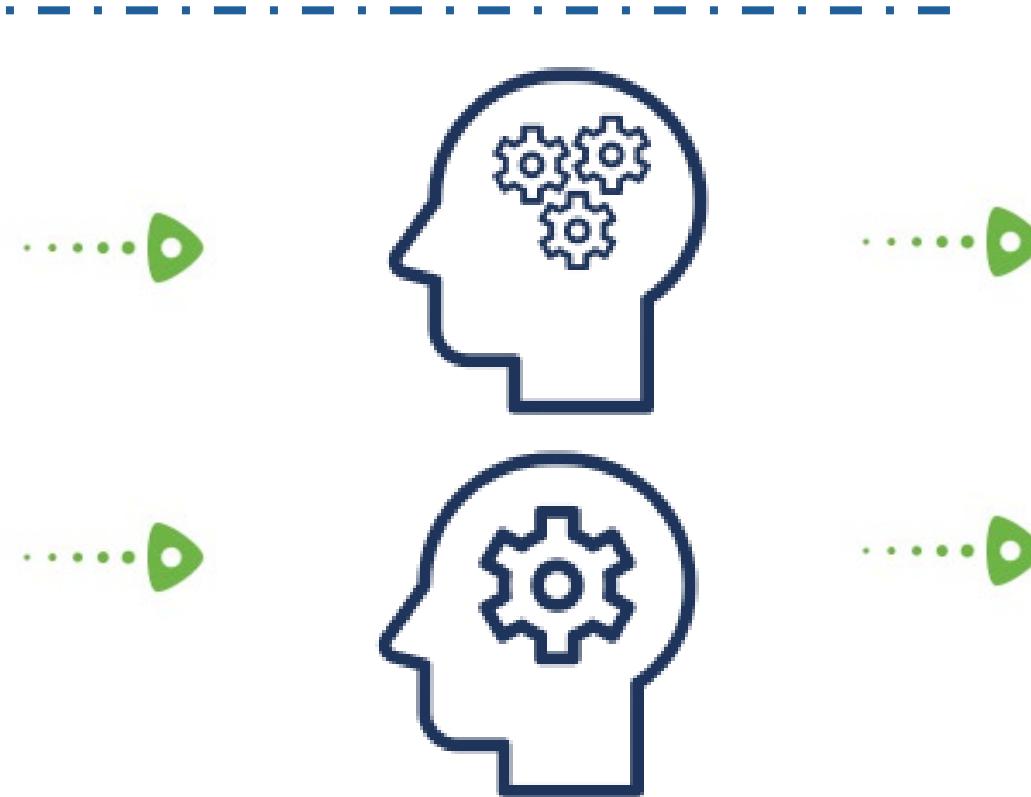


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How does cognitive bias work?

IB



**Same
Information**

**Different
Context**

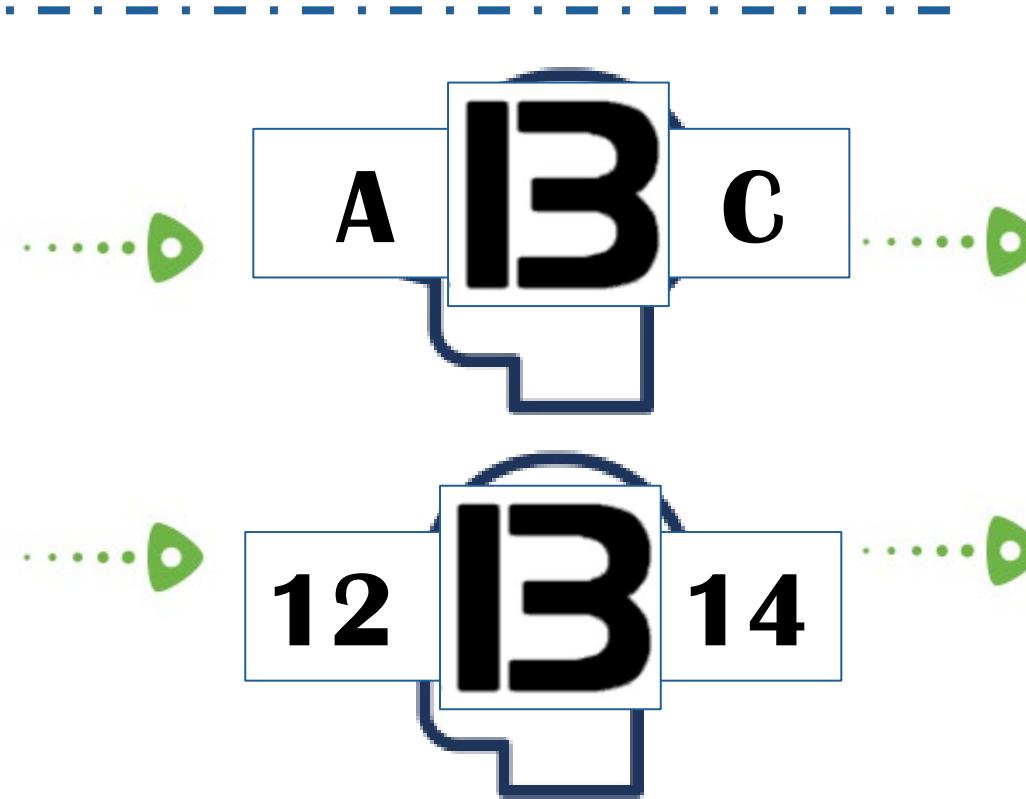
**Different
Interpretations**



How does cognitive bias work?

13

Same
Information



Different
Context

Different
Interpretations

I see “B”.

I see “13”.



How might bias affect MDI?

Autopsy reveals a single gunshot wound to the head and no other injuries.

**Same
Information**

This person had a history of **mental illness** and **suicidal ideation**.

Hospitalized for **gunshot wounds** in the past and arrests linked with **gang activity**.

**Different
Context**



Suicide



Homicide

**Different
Interpretations**



Simple ways to address bias in MDI

Transparency through detailed documentation:

- What information was considered and when?
- What was the basis for the ultimate opinion?
- Were any competing hypotheses considered?
- What is the examiner's level of certainty?
- How and why did the opinion change over time?
- Quality control measures and outcomes of these?

Ideally – **Standardized** and **contemporaneous**.



Simple ways to address bias in MDI

Benefits of **transparency**:

- Detailed, standardized documentation encourages careful decision-making; less likely to miss steps.
- Preserves the context in which decisions were made and why the examiner came to that decision.
- Protects examiners by creating a clear record of their procedures and safeguards (for testimony or audits).



General Approach: LSU-E Worksheet

Quigley-McBride et al., 2022 (FSI: Synergy)

Form completed by: _____ Role: _____ Location/Laboratory: _____

Case Identifier _____ Date: _____

Information Type	Source of Information	Guiding Principles: Circle one number for each principle*	Explanation of any potential for bias	Steps taken to prevent, mitigate, or identify the effects of bias
		<i>Biassing power:</i> none - 1 2 3 4 5 - a lot <i>Subjectivity:</i> none - 1 2 3 4 5 - a lot <i>Irrelevance:</i> none - 1 2 3 4 5 - a lot		
		<i>Biassing power:</i> none - 1 2 3 4 5 - a lot <i>Subjectivity:</i> none - 1 2 3 4 5 - a lot <i>Irrelevance:</i> none - 1 2 3 4 5 - a lot		
		<i>Biassing power:</i> none - 1 2 3 4 5 - a lot <i>Subjectivity:</i> none - 1 2 3 4 5 - a lot <i>Irrelevance:</i> none - 1 2 3 4 5 - a lot		
		<i>Biassing power:</i> none - 1 2 3 4 5 - a lot <i>Subjectivity:</i> none - 1 2 3 4 5 - a lot <i>Irrelevance:</i> none - 1 2 3 4 5 - a lot		



Specific Approach: Manner of Death

	Manner of Death				
	Homicide	Suicide	Natural	Accidental	Undetermined
Evidence for					
	Relevance: Medical / Non-Med / Both				
	Subjectivity: Low / Med / High				
Evidence against					
	Relevance: Medical / Non-Med / Both				
	Subjectivity: Low / Med / High				
Manner of Death Conclusion:					
Reasons:					

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Challenges to communication?

Who is the audience?

- Primarily non-scientists: Police, lawyers, judges, jurors, etc.

What does the audience *think* they know?

- **Pre-existing beliefs** about the reliability of forensics.
- Shaped by **misleading** info in news/entertainment media.

Other barriers to effective communication:

- Scientific literacy, memory, motivation, stress, and more.
- Format: Report, testimony, or both?

Creates risk of miscommunication!





Testimony versus reports?

Expert Testimony (Oral)	Forensic Reports (Written)
User must remember & understand	User must understand
Must be deemed admissible	No admissibility rules
Can clarify when presenting in court	No opportunity to explain
Difficult to standardize	Easier to standardize
Message contingent on questions	Message is a fixed record

Two ways cause and manner determinations are communicated. Benefits and drawbacks of each?





Preventing miscommunication

Take an **evidence-based approach** to report writing.

- Reports affect more cases because ~90% of cases do not go to trial in the USA.
- Reports are not necessarily subject to legal safeguards (e.g., admissibility standards, cross examination).
- Easier to research efficacy & standardize accordingly.

Non-experts need help understanding what MDIs understand implicitly – walk them through the decision process and the info relied upon.





Preventing miscommunication

Forensic reports should clearly explain:

- What the findings **do (and do not) mean.**
 - Should **not** misrepresent the meaning of any statistics/values.
- The **basis** for the determinations (i.e., info relied upon).
- Any **alternative explanations** for the observed findings.
- **Caveats and limitations**—both general & case-specific.
- Whether/how the **opinion evolved over time** (and why).

...and **TRANSPARENCY** through detailed, contemporaneous documentation of examination process.



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