Affect Heuristic: The Roles of Task Type, Cognitive Capacity & Biased Judgments

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The Affect Heuristic

The affect heuristic derives judgments from positive and negative feelings towards stimuli. It is unknown whether different affect heuristic tasks assess the same construct and exhibit typical hallmarks of heuristic processing: A negative relationship with cognitive capacity[1] and a positive relationship with bias[2].

Methods

Pre-registered Qualtrics survey (AsPredicted.org #29144)

N	Age Range	M_{age}	SD_{age}	Non-Hispanic White	Female
195	21 – 90	52.95	18.10	71%	50%

Affect-Impact Task

Events that evoke more negative feelings are perceived to have worse impact than other events, even if their objective impact is identical. [3]

- 3 catastrophes x 2 causes (human vs. natural cause)
- Affect: 0 "Very positive" – 100 "Very negative", α = .93
- Impact Rating: " 0 "Very small" – 100 "Very large", α = .94

→ **Heuristic Index:** Affect x Impact, r_ρ = .40***

Dread-Inference Task

Stimuli that evoke more negative feelings are perceived to be more common, which may lead to inaccurate judgments of the frequency with which they occur.[4]

- 5 causes of deaths (e.g, fire and flames, excess cold)
- Affect: (1) "No dread" – (7) "Very strong dread", α = .85
- Frequency Rating: numeric (# of deaths in US per year)

→ **Heuristic Index:** Affect x Frequency Rating, r_ρ = .28***

Risk-Benefit Task

Real-life risks and benefits are often positively associated but reliance on the affect heuristic leads to the (incorrect) perception of negative risk-benefit correlations.[5]

- 3 food additives (electrolytes, minerals, vitamins)
- Benefit Rating: (0) "Very low" – (10) "Very high", α = .92
- Risk Rating: (0) "Very low" – (10) "Very high", α = .93

→ **Heuristic Index:** Avg(|Risks–Benefits|), *M* = 4.31 (3.13)***

Results

Hypothesis 1: **Reliance on the affect heuristic is correlated across task types.** → **No!**
r_{ps} = -.09 to .12, *ps* = .111 to .494 (inter-correlation among affect heuristic task indices)

Hypothesis 2: **Stronger use of the affect heuristic predicts greater bias.** → **No!**

Task Type	Bias Index	Affect Heuristic → Bias
Affect-Impact	Average(|Human Impact – Natural Impact|)	β = .05, *p* = .508, *pseudo-*R^2 = .00
Dread-Inference	Average(|Frequency Rating – Actual Frequency|)	β = -.04, *p* = .636, *pseudo-*R^2 = .99
Risk-Benefit	N/A (same index as affect heuristic index)	N/A

Question 1: **Does cognitive capacity predict use of the affect heuristic?** → **(Mostly) No!**

	Self-Rated Learning Ability (1 – 5)	Self-Rated Memory (1 – 5)	Crystallized Intelligence (0 – 12)	Cognitive Reflection Ability (0 – 3)	Numeracy (0 – 3)	Verbatim Preference (0 – 1)	*Pseudo-*R^2
Task Type	3.80 (.91)	3.34 (.96)	6.47 (2.32)	.25 (.60)	1.30 (.99)	.42 (.31)	
Affect-Impact	β = .04	β = -.08	β = -.09	β = .08	β = -.02	β = -.05	.46
Dread-Inference	β = -.15	β = .15	β = -.13	β = .07	β = .05	β = -.05	.17
Risk-Benefit	β = .25*	β = -.06	β = .04	β = -.06	β = .05	β = -.09	.42

Discussion

- **Summary:** Affect heuristic reliance was evident in all three tasks. Use of the affect heuristic was not associated with typical hallmarks of heuristic processing (i.e., decreased cognitive capacity, increased bias in judgments) for any of the task types. More research is needed to determine in which ways the affect "heuristic" is (and isn't) comparable to other heuristics.

- **Limitations:** Stimuli vary in the valence and intensity of affect each person associates them with.[5,6] Because each task used a different set of stimuli (ranging from small and common risks to great and rare risks), the stimulus material might not have allowed us to observe cross-task correlations.

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