

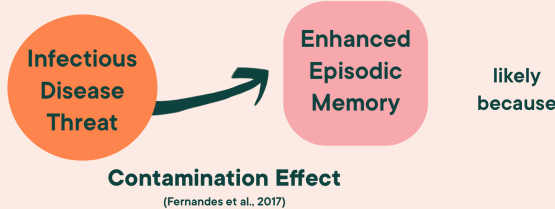
# Adaptive Memory in Contamination Context: Emotionality is a Proximate Mechanism

Sofia Pelica<sup>1</sup>, Margarida V. Garrido<sup>1</sup>, Magda Saraiva<sup>2</sup>, and Josefa N. S. Pandeirada<sup>3</sup>

<sup>1</sup>Iscte - University Institute of Lisbon; <sup>2</sup>William James Center for Research, Ispa - University Institute; <sup>3</sup>William James Center for Research, University of Aveiro

Background

Contamination-related cues are recalled better than neutral ones.



Memory is specialized to **process fitness-relevant** information and is particularly sensitive to **disgust**, more so than to fear.

(Moeck et al., 2021; Nairne et al., 2007; Schienle et al., 2021)

But how?

But how is this memory tuning achieved?

Some findings suggest that **emotionality cannot explain** this tuning...

but those studies only used self-reported scales or manipulated emotions that were unrelated to threats.

(e.g., Bell et al., 2013; Fernandes et al., 2021; Gretz & Huff, 2019; Kronenheit & Erdfelder, 2011; Nairne et al., 2017; Thibaut et al., 2022; Yang et al., 2014)

In a similar paradigm involving the threat of predators and food deprivation, evidence has shown that....

! a **deeper cardiac deceleration** occurs in survival conditions, and the mnemonic advantage in survival conditions only occurs in the **individual's native language** and not in a secondary language, likely due to the weaker emotional associations in the latter.

(Fiacconi et al., 2015; Garrido & Prada, 2018; Kazanas et al., 2021; Saraiva et al., 2021)

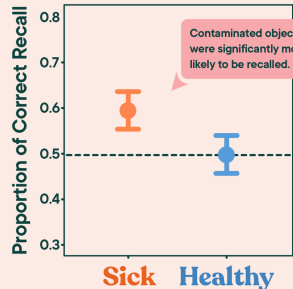
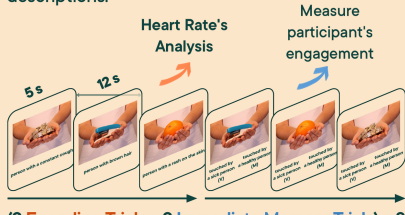
Emotions related to threats?

Assessing the Role of Disgust

Replication of Contamination Effect with Psychophysiological Index Extension.

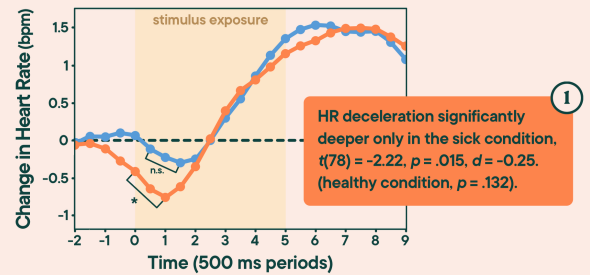
80 participants (55 females)  
 $M_{age} = 22.60, SD_{age} = 8.06$

Participants were asked to recall and identify (24) objects that have been **touched by people infected with a deadly disease or who were healthy**, based on clues provided in (12) short descriptions.



Contamination Effect was replicated,  $b = 0.47, p < .001$ , OR = 1.59. (Fernandes et al., 2017, 2021)

Pathogen Disgust influences the Contamination Effect:



Participants who manifested the **contamination effect** showed a significant bradycardia while recalling objects from the sick condition (vs. healthy condition),  $t(42) = -1.86, p = .035, d = -0.28$ . Participants who **did not manifest** the contamination effect ( $n=36$ ) showed no significant difference,  $p = .170$ , (in line with Fiacconi et al., 2015)

Memory advantage arises from the activation of autonomic disgust responses to pathogenic threats, which trigger the defensive motivational system. (Bradley et al., 2001; Lang et al., 2000)

Limitations: The COVID-19 pandemic may have increased susceptibility to experiencing pathogen disgust.

Future research: Eye-tracking and fMRI can be used to further understand the interaction between cognitive and emotional systems in threatening contexts.

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