



V International Congress of Psychobiology
Madrid, July 9-12, 2024



Title:

**V International Congress of Psychobiology (Madrid, July 2024):
Conference Book**

© Authors listed in the Author Index

Scientific Editors:

**Jaime Iglesias Dorado, Ela I. Olivares Carreño,
Jorge Francisco Bosch Bayard**

Promoting entity:

Sociedad Española de Psicobiología

Collaborating entity:

Facultad de Psicología de la Universidad Autónoma de Madrid

ISBN: 978-84-09-63494-1

SPONSORS

Bionic Ibérica



Intelimed Ibérica





POSTER 34

Cardiac Interoceptive Processing Across Psychopathy Dimensions: Evidence from the Heartbeat Tapping Task and the Attentional Modulation of Heartbeat-Evoked Potentials.

Carlos Campos^{1,2,3,4}, Catarina Sá³, Prune Mazer^{1,2,5}, Rita Pasion⁴, Helena Garcez¹, Tiago O. Paiva^{1,4}, Patrícia Vilela Braga², Nuno Barbosa Rocha⁶ & Fernando Barbosa¹

¹Laboratory of Neuropsychophysiology, Faculty of Psychology and Education Sciences, University of Porto, Portugal

²Faculty of Medicine, University of Porto, Portugal

³Neurocognition Group | LabRP, School of Health, Center for Rehabilitation Research, Polytechnic University of Porto, Portugal

⁴Lusófona University, HEI-Lab: Digital Human-Environment Interaction Labs, Portugal

⁵School of Health, Polytechnic University of Porto, Portugal

⁶Center for Translational Health and Medical Biotechnology Research, School of Health, Polytechnic University of Porto, Portugal

Introduction: Psychopathy is a multidimensional personality structure encompassing interpersonal, affective, and behavioral traits. Interoception (ability to perceive and subjectively experience inner bodily states) may be a putative mechanism underlying the etiological pathways of psychopathy. Individual differences in interoceptive processing across psychopathy dimensions may interfere with the ability to perceive somatic sensations that signal the emotional valence of everyday events. Goal: To examine the association between psychopathy dimensions (triarchic phenotypes - boldness, meanness, and disinhibition; classical 4-facets - interpersonal, affective, impulsive, antisocial) and cardiac interoceptive processing, namely objectively measured cardiac interoceptive attention and accuracy. Methods: Fifty community-dwelling participants (25 women) were recruited and completed: (a) self-report measures indexing psychopathy, trait-based interoceptive attention and accuracy, and alexithymia; (b) modified Heartbeat Tapping Task to index cardiac interoceptive accuracy, where subjects were required to tap after each heartbeat under rest and breath hold conditions (the latter enhanced the magnitude of cardiac signals); (c) modified Heartbeat Attention Task for producing an attentional modulation of heartbeat-evoked potentials (HEP) - neuronal markers of cardiac interoceptive processing - where subjects were required to allocate their attention on their heart vs. an exteroceptive stimulus (objective measure of interoceptive attention). Results: Cardiac interoception was only significantly related to boldness traits. Boldness was positively associated with cardiac interoceptive accuracy after the breath hold manipulation (non-significant after controlling for heart rate), despite no significant effects being observed at rest. Boldness was also negatively correlated with the attentional modulation of HEP due to atypical neuronal responses when allocating attentional resources to the heart. Conclusion: The current findings implicate cardiac interoception in the boldness phenotype, as this psychopathy dimension was associated with enhanced interoceptive-specific perceptual sensitivity and atypical neuronal responses to cardiac afferent inputs when attending to heart-related sensations. Future studies should examine how other interoceptive modalities (e.g., respiratory, gastric) are implicated in psychopathy.

Funding: This work was supported by the Fundação para a Ciência e a Tecnologia (FCT) through R&D Units funding (UIDB/05210/2020) and Ph. D. grants (SFRH/BD/136296/2018, COVID/BD/152753/2022 and 2021.07199.BD) co-funded by the NORTE2020/FSE.