

The utility of physiological measures in assessing psychosocial and inhibitory capacities of violent offenders

Julie Palix^{1*}, Steven M. Gillespie², Milena Abbiati¹, Valérie Moulin¹, Christine Mohr³, Elise Dan-Glauser³, Ahmad Abu-Akel^{3,4}

¹Research Unit of Legal Psychiatry and Psychology, University Hospital of Lausanne, Switzerland. ²Institute of Life and Human Sciences, University of Liverpool, United Kingdom. ³Institute of Psychology, University of Lausanne, Switzerland, ⁴School of Psychological Sciences, University of Haifa, Israel.

* julie.palix@chuv.ch

Abstract

Emerging evidence suggests that the development and persistence of violent behaviors may be associated with specific physiological reactivities. However, the results are contradictory, as both biological over-activation and under-activation may be involved. For the present contribution, we will focus on two studies examining the dynamics of the two antagonistic autonomic nervous system activities, sympathetic (reactivity and arousal) and parasympathetic (inhibition and restoration), of an adult male population incarcerated for perpetrating interpersonal violence. Physiological activities were measured using electrocardiograms to estimate indices of heart-rate variability (HRV) at rest and during activity, while performing a task. In Study 1, we examined the association of at-rest-HRV estimates and self-reported psychosocial skills measuring empathy and impulsivity^[1], and in Study 2, we examined the association of activity-HRV estimates and performance on an emotional inhibition task^[2]. Our results showed that both self-reported measures and task performance do not discriminate the violent offenders from matched controls. However, significant differences were found between the two groups in their HRV activities. Our findings will be interpreted in relation to the different current psychobiological theories regarding the emergence of violent behavior, and discussed in terms of the potential that such physiological assessments could offer both in terms of prevention and in the evaluation of persistent violence.

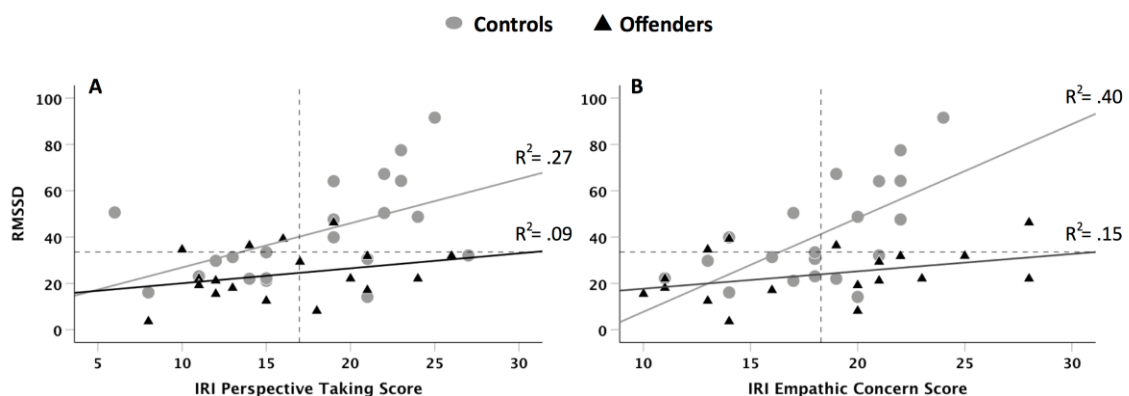


Figure 1. Illustration of the relationship between self-reported empathic subscores and the HRV (parasympathetic index RMSSD in msec) for both the controls (grey dots) and offenders (black triangles).

Keywords

Violence; heart rate variability; empathy; resting state; arousal

References

- [1] Palix, J., Abu-Akel, A., Moulin, V., Abbiati, M., Gasser, J., Hasler, C., ... & Dan-Glauser, E. (2022). The utility of physiological measures in assessing the empathic skills of incarcerated violent offenders. *International journal of offender therapy and comparative criminology*, 66(1), 98-122.
- [2] Palix, J., Gillespie, S. M., Abbiati, M., & Abu-Akel, A. (under review). Dynamics of Parasympathetic Activity in Violent Incarcerated Offenders Before, During, and in Recovery From An Emotional Inhibition Task. *Scientific Reports*.