

Theme: Cognitive Neuroscience

“First Look” at Intimate Partner Violence (IPV) from a fMRI perspective

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Abstract:

Intimate Partner Violence (IPV) is a multidimensional phenomenon and a serious public health problem.

This work provides a preliminary exploration of neural patterns in a sample of IPV offenders and non-offenders, using an innovative fMRI experimental paradigm.

Participants are 44 Portuguese heterosexual adult males: 22 Offenders recruited and accompanied in a specialized medical consultation (UVF/CPTTP) and 22 Non-offenders from general population, without IPV history and within an intimate relation (or former one), matched for age, education.

We implemented a fMRI block design (3 runs, 20 trials each). Each trial included the presentation (10s) of negatively “activating” (IPV-related content) or neutral sentences, followed by a rating of arousal (0-4). A numerical distractor task followed each trial (10s). We conducted a preliminary and exploratory within-subjects analysis to identify the primary brain areas involved during the experiment.

The main task (visualization of sentences and rating), comparing with the distractor task, showed higher BOLD signal in the frontopolar and orbitolateral cortices, left thalamus, bilateral amygdala, and also in the posterior cingulate gyrus and the temporal pole. The distractor task (comparing with the former conditions) showed higher BOLD signal in the inferior parietal lobule and in the right anterior insula ($RFX-t(43) > 6.85$, $p < 0.005$, Bonferroni corrected).

This preliminary data provides a foundation for future studies in the IPV field. This analysis revealed the involvement of areas related to affective cognition, emotional processing, complex goal-oriented behaviour and regulation, while participants are engaged in the sentence’s visualization and rating. Otherwise, areas associated with attention, processing speed and salient information processing were highlighted during the distractor task. Future research should investigate group-related differences and compare the brain activity patterns when exposed to both conditions (neutral Vs negatively “activating” sentences).

Keywords: Intimate partner violence; Offenders; fMRI; BOLD.