

Neurobiological correlates of empathy in couples: A study of central and peripheral measures

ABSTRACT:

Background

Social neuroscience contributed for the understanding of the neural correlates of empathy both at peripheral and central nervous system levels. However most of the paradigms used so far use fictional stimuli as the target of the empathic response. The lack of ecological validity and the importance to study empathy in its naturally occurring contexts motivated this project. We focused on the context of romantic relationships where empathy is critical for the feelings of support and validation.

Aims

The aims of the study were 1) to analyze the autonomic and neuroendocrine responses of both spouses during an interaction task; 2) to analyze the brain response during an empathic task as well as the relationship between the default mode network (DMN) and dyadic empathy.

Method

32 couples ($N = 64$), married or living together for at least 1 year performed a structured interaction task in which they talked about problems and strengths of their relationship while electrodermal and cardiac activity were recorded using the Biopac MP-150 system. Measures of empathy and dyadic adjustment were filled by both spouses. In the fMRI study each spouse watched video-vignettes of his/her partner expressing negative and positive contents (extracted from the previously videotaped interaction) and had to elaborate on their spouse's (other) or on their own experience (self).

Results and conclusions

We found a higher autonomic and neuroendocrine activation in the couple's negative interaction. Neuroimaging data replicated the relationship between the DMN and empathy. Self-condition recruited brain areas linked to empathy affective components such as insula, whereas other condition recruited areas linked with theory of mind like the supramarginal gyrus.

Keywords

Empathy, Intimate relationships, Neuroimaging, Autonomic arousal, Neuroendocrine response

Published Work:

Coutinho, J., & Oliveira-Silva, P., & Gonçalves, O. F. (in press). Empathy by default: correlates in the brain at rest. *Psychothema*.

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