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Marital Satisfaction, Error-observation, and the Brain: Harmful or Beneficial Effects of Spouse Observation?

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Marital Satisfaction, Error-observation, and the Brain: Harmful or Beneficial Effects of Spouse Observation?
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Introduction

- Rewarding marital relationships are associated with many positive outcomes in one’s physical and mental health, including improved cardiovascular functioning, decreased depression risk, higher self-reported levels of happiness, and overall lower rates of mortality.
- The purpose of this study was to observe the differences in performance monitoring between males and females (while being observed by their spouses) using error-related brain activity (ERN).

Method

- 66 heterosexual married couples (132 individuals) 18-to 55-years old, right-handed, English speakers
- Assigned to one of three counterbalanced conditions: 1) observed by their spouse; 2) observed by an unfamiliar observer; 3) no observer
- Measured event-related potentials (ERPs) using 128 electrode sensor EEG net
- Completed computerized reaction time task while observer tracked number of errors they made.

Results

When being observed by their spouse, females experienced greater ERN amplitudes (i.e., more negative) than males F(2, 176) = 5.12, p = 0.007, \( \eta^2 = 0.06 \). See figure below.
There was increased brain activity to the spouse observer than the confederate observer.

Conclusions

- Females experienced higher reactivity to their errors than males under observation from their spouse.
- Anxiety: Research shows a relationship between negative ERN amplitude and anxiety. Our results have implications for spousal interactions and the role anxiety plays, especially for the female spouse when it comes to feeling supported or threatened during stressful situations (i.e., the computerized task).
- Female Social Support: An additional Interpretation relates to the current literature on gender-preferred social support. This literature suggests that both males and females seek females for social support. In this study, males might be showing dampened reactivity while being observed by their wives because they feel supported by her as a female, rather than as a spouse.

*ERN is a response-locked, negative deflecting event-related potential (ERP) that occurs 50-100 msec following an error

*ERPs are changes in the brain's electrical waveforms due to responses to stimuli

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