

Effects of romantic love on early and late attention: An event-related potentials study



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Introduction

- Emotionally salient stimuli are given attentional priority [1]
- The beloved is an emotionally salient stimulus [3,4]
- Event-related potentials (ERPs) measure brain's response to stimuli
 - Early posterior negativity (EPN) reflects early [automatic] attention
 - Late positive potential (LPP) reflects late [motivated] attention
- Research question:** Does the beloved capture early and late attention?
- Hypothesis 1:** Faces of the beloved will elicit a larger EPN than faces of a friend or stranger
- Hypothesis 2:** Faces of the beloved will elicit larger LPP than faces of a friend or stranger

Methods

- 24 participants (18-35 yrs, 9 men) in love with opposite sex for < 1 year
- Stimuli - face pictures of the beloved, a friend, and a stranger
- Fast task: passive viewing of three randomized pictures per second of beloved, friend, and stranger to elicit EPN (Fig. 1)
- Slow task: passive viewing of one pseudo-randomized picture per second of either beloved, friend, or stranger to elicit LPP (Fig. 1)
- 32-channel EEG registration (Biosemi)
- Ratings: valence and arousal elicited by faces using Self-Assessment Manikin
- EPN amplitude (150-225 ms, 225-300 ms) at P7, O1, Oz, O2, P8
- LPP amplitude (400-1000 ms) at F3, Fz, F4, C3, Cz, C4, P3, Pz, P4

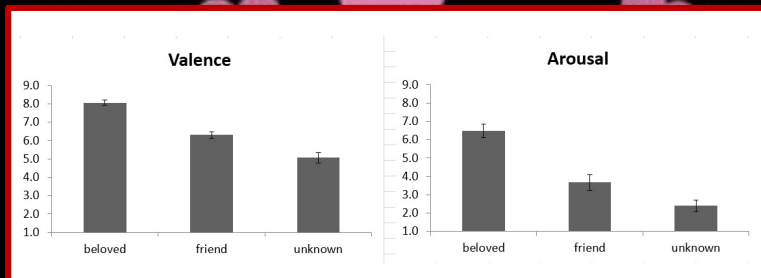


Fig. 2 Valence and Arousal ratings

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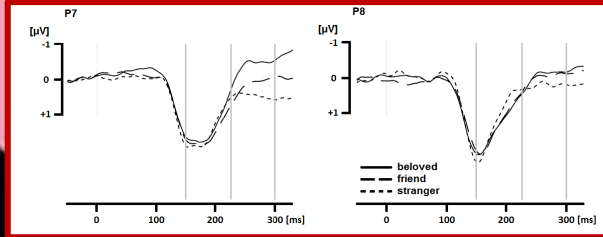


Fig. 3 ERPs for fast task (EPN) at electrodes P7 & P8

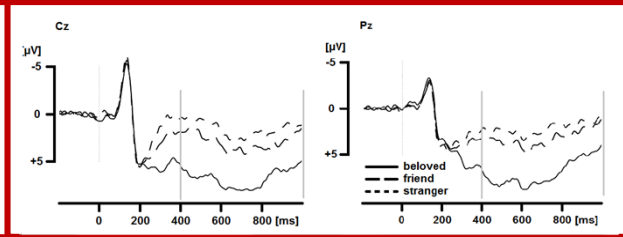


Fig. 4 ERPs for slow task (LPP) at electrodes Cz & Pz

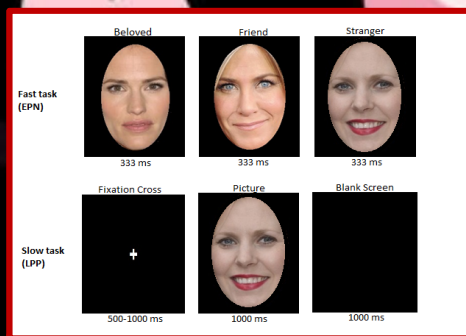


Fig. 1 Trial overview

Results

- Participants reported to know their beloved better than the friend
- Romantic relationships were of shorter duration but better quality than friendships
- Valence & Arousal
 - beloved > friend > stranger (Fig. 2)
- EPN (225-300ms) at P7
 - beloved > friend = stranger (Fig. 3,5)
- LPP (400-1000ms)
 - beloved > friend = stranger (Fig. 4,5)

Discussion

- Both the EPN and LPP exhibited a larger response to the face of the beloved than to the faces of the friend or stranger
- No significant differences in EPN and LPP between friend and stranger, indicating that enhanced EPN & LPP for beloved are not due to familiarity
- Findings suggest that the beloved captures early automatic attention and late motivated attention in early stages of love
- Supports previous research relating to the effects of romantic love on cognition [2,3,4]
- Further research could explore strategies to help decrease negative and increase positive effects of romantic love

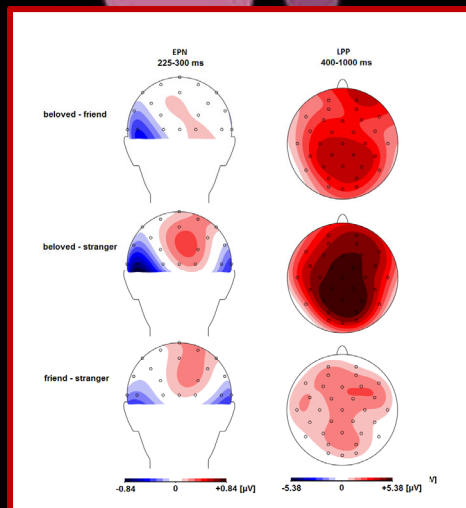


Fig. 5 Topographies of EPN and LPP

References

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