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

Lauri L. Davis, Sandra J.E. Langeslag, & Jan W. van Strien
University of Missouri – St. Louis & Erasmus University Rotterdam

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

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

References