

Infatuation is associated with distraction: An event-related potentials study

Introduction

- Infatuated individuals have better attention for beloved-related information than other information [1,2]
- Infatuated individuals report having trouble concentrating [3]
- So, romantic love can both improve and hurt cognition
- Emotional information is preferentially processed, which
 - improves task performance when the information is task-relevant
 - reduces task performance when the information is task-irrelevant [4]
- **Research question 1:** Is beloved-related information preferentially processed even when it is task-irrelevant?
- **Hypothesis 1:** The early posterior negativity (EPN), reflecting early automatic attention, and the late positive potential (LPP), reflecting motivated attention, will be enhanced for task-irrelevant beloved compared to friend or stranger pictures
- **Research question 2:** Does this preferential processing of task-irrelevant beloved-related information hurt task performance?
- **Hypothesis 2a:** Task performance will be worse/slower when task-irrelevant pictures are of the beloved than a friend or stranger
- **Hypothesis 2b:** More obsessive thinking about the beloved will be associated with poorer/slower overall task performance

Methods

- 24 participants (18-34 years, 9 men) who had been in love for < 1 year
- Short-term memory task for abstract shapes with task-irrelevant pictures of beloved, friend, and stranger (Fig. 1)
- 32-channel EEG registration (Biosemi)
- EPN amplitude (250-400 ms) at P7, P8, O1, & O2
- LPP amplitude (400-1000, 1000-2000, & 2000-3000 ms) at Cz & Pz
- Discrimination index Pr and mean RT for correct responses
- Obsession items of Infatuation and Attachment Scales (IAS) and Passionate Love Scale (PLS)

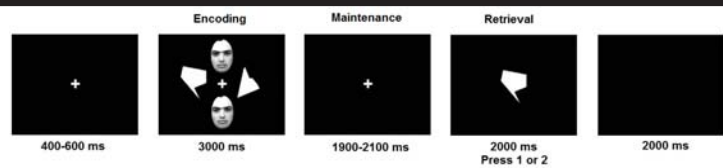


Fig. 1 Trial overview

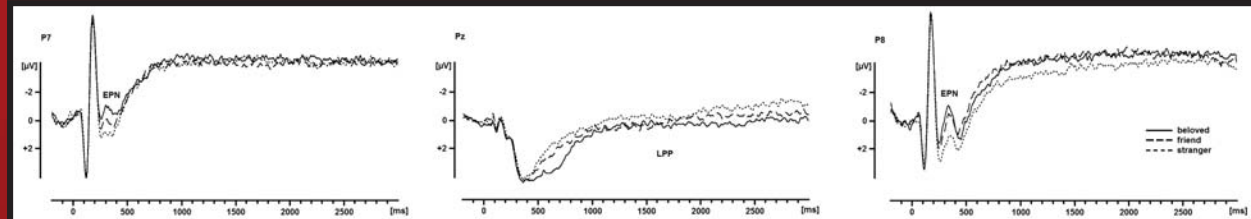


Fig. 2 Event-related potentials (ERPs) during encoding for the three conditions

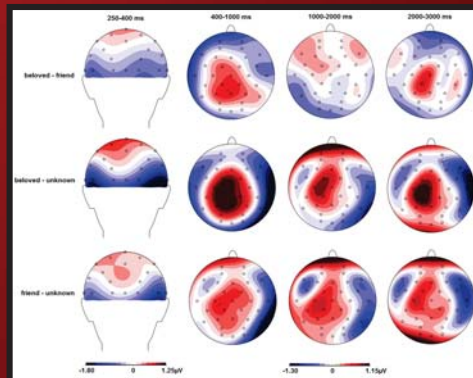


Fig. 3 EPN and LPP scalp topographies

Results

- EPN: beloved > friend > stranger (Figs. 2 & 3)
- LPP (Figs. 2 & 3)
 - 400-1000 ms: beloved > friend = stranger
 - 1000-2000 ms: beloved = friend = stranger
 - 2000-3000 ms: beloved > stranger
- Pr: beloved (0.55) = friend (0.58) = stranger (0.56)
- RT: beloved (970 ms) = friend (971 ms) = stranger (972 ms)
- Correlations between obsessive thinking and Pr & RT (Fig. 4)

Discussion

- Beloved-related information is preferentially processed even when it is task-irrelevant
 - it captures early automatic attention (EPN)
 - it receives more motivated attention (LPP)
- Task-irrelevant beloved-related information did not negatively impact task performance
 - perhaps because attention shifted back to the shapes after 1000 ms
- More obsessive thinking about the beloved might be related to poorer and slower overall task performance
- More research is needed to clarify
 - why infatuated individuals experience trouble concentrating
 - how this negative effect of love on cognition could be reduced

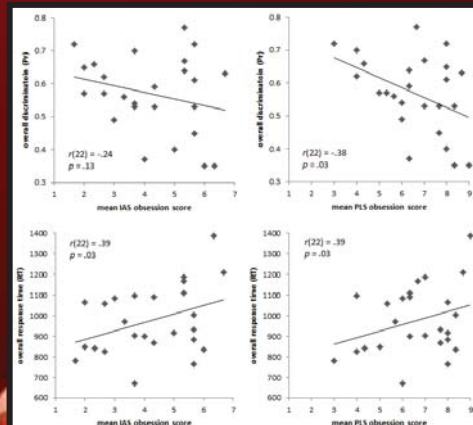


Fig. 4 Scatterplots, all ps one-sided

References

- [1] Langeslag, Jansma, Franken, & Van Strien (2007) *Biological Psychology*
- [2] Langeslag, Franken, & Van Strien (2008) *Neuroscience Letters*
- [3] Langeslag, Muris, & Franken (2013) *The Journal of Sex Research*
- [4] Dolcos, Iordan, & Dolcos (2011) *Journal of Cognitive Psychology*

Correspondence to Sandra Langeslag (langeslags@umsl.edu)