

# **Bidirectional effect of emotional contagion for pain during face-to-face interaction**

**Aiko Murata**  
Waseda University

**Tatsuya Kameda**  
The University of Tokyo

**Katsumi Watanabe**  
Waseda University

**Abstract:** The automatic contagion of emotion is considered crucial in interpersonal communication. In face-to-face interactions, people could be both the receiver and sender of emotional content. Thus, contagion may have bidirectional influences on the emotional states of individuals. However, many studies have mainly dealt with unidirectional contagion, such that the expression of pain in a target entails a reaction of pain in the observer. In this study, we demonstrated bidirectional emotional contagion in the experience of thermal pain during interaction. Firstly, we showed that the physiological responses of dyad members were correlated with each other when they could interact compared to when they were impaired to see each other. Further, we demonstrated that individuals showed higher or lower physiological responses when their partners experienced stronger or weaker stimuli respectively. Thus, people can develop similar physiological responses through interactions, and this effect seems to induce a change in the responsivity to stimuli.