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Reward and motivation systems: a brain mapping study of early-stage intense romantic love in Chinese participants.

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Source

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Abstract

Early-stage romantic love has been studied previously in the United States and United Kingdom (Aron et al. [2005]: J Neurophysiol 94:327–337; Bartels and Zeki [2000]: Neuroreport 11:3829–3834; Ortigue et al. [2007]: J Cogn Neurosci 19:1218–1230), revealing activation in the reward and motivation systems of the brain. In this study, we asked what systems are activated for early-stage romantic love in Easterners, specifically Chinese participants? Are these activations affected by individual differences within a cultural context of Traditionality and Modernity? Also, are these brain activations correlated with later satisfaction in the relationship? In Beijing, we used the same procedure used by Aron et al. (Aron et al. [2005]: J Neurophysiol 94:327–337). The stimuli for 18 Chinese participants were a picture of the face of their beloved, the face of a familiar acquaintance, and a countback task. We found significant activations specific to the beloved in the reward and motivation systems, particularly, the ventral tegmental area and the caudate. The mid-orbitofrontal cortex and cerebellum were also activated, whereas amygdala, medial orbitofrontal, and medial accumbens activity were decreased relative to the familiar acquaintance. Self-reported Traditionality and Modernity scores were each positively correlated with activity in the nucleus accumbens, although in different regions and sides of the brain. Activity in the subgenual area and the superior frontal gyrus was associated with higher relationship happiness at 18-month follow-up. Our results show that midbrain dopamine-rich reward/motivation systems were activated by early-stage romantic love in Chinese participants, as found by other studies. Neural activity was associated with Traditionality and Modernity attitudes as well as with later relationship happiness for Chinese participants.

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