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Talk Title:

Conscious and subconscious neural processing of self image

Abstract:

Our brains have created the concept of self in order to discriminate ourselves and act in our environment. However, the neural system that generates the self remains unclear. We found that the deformation of self-image involves functional interplay between dopaminergic neural systems and amygdala. Interestingly, the dopaminergic neural systems are also activated for subliminally presented self faces, and the amygdala is activated for subliminally presented unknown faces. In addition, using facial similarity analysis by state-of-the-art artificial intelligence, we have demonstrated that people tend to trust faces that look like their own.

The salience network including the anterior insular, anterior cingulate gyrus, and superior marginal gyrus is involved in self-recognition and the activity of it dramatically change in association with deformation of self-image. Furthermore, the saliency network consistently showed activation in relation to self-recognition, even when the viewpoint of the self was changed. This brain network is also known to be involved in interoception, and our recent study has shown that one's own positive emotional expression enhances the interoceptive processing in this network.

These findings suggest that we activate the reward system to preferentially collect information relevant to the self, integrate various information relevant to the self in the salience network, and utilize it for optimal social judgment.

References

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Nakano & Yamamoto. You trust a face like yours. *Humanities and Social Sciences Communications* (2022)

Asakage & Nakano. The salience network is activated during self-recognition from both first-person and third-person perspectives. *Human Brain Mapping* (2022)