Researchers measure when the boundaries of the body seem to fade during focused-attention meditation

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Mindfulness Meditation Fades the Boundaries of Peripersonal Space

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Credit: *Behavioural Sciences*

An experimental study with nonmeditator participants revealed that a 15-minute focused-attention meditation session blurred the boundary between the self and the environment, aligning with the feeling of the body's boundaries fading reported by meditators.

During meditation, some practitioners often report a feeling of their body's boundaries fading. When asked about the root cause of this experience, they attribute it to a sense of letting go of the need for self-protection and feeling more connected to the world around them.

This has to do with the peripersonal space (PPS), i.e., a dynamic multisensory representation of the space around the body, influenced by internal and external sensory information. The malleability of PPS boundaries, as evidenced by their expansion after tool use or modulation through social interactions, positions PPS as a crucial element in understanding the subjective experiences of self and otherness.

Building on the existing literature highlighting both the cognitive and bodily effects of mindfulness meditation, Luca Simione and collaborators propose a novel approach to this subject through an experimental study on the impact of meditation on PPS sharpness in nonmeditators, hypothesizing a blurring of the boundary between the self and the environment, in line with empirical reports from meditators.

In the article "Mindfulness Affects the Boundaries of Bodily Self-Representation: The Effect of Focused-Attention Meditation in Fading the Boundary of Peripersonal Space," published as a cover story in the

journal *Behavioural Sciences* in April, the authors explain that the study involved 26 nonmeditator participants in a 15-minute meditation session to assess PPS, both in terms of the extent and sharpness of its boundaries.

During the experiment, the participants followed a pre-recorded voice that encouraged them to maintain awareness of their breathing sensations and to let go of distracting thoughts or mental contents. Such meditation practice is known as focused attention meditation (FAM). At the end of the meditation session, they were asked to assess how successful they felt in performing the breathing FAM practice, responding on a Likert scale from 1 to 5.

The results showed that the FAM session modified the representation of the PPS in the group of nonmeditators. Specifically, it was observed that FAM led to a fading of the boundaries of the PPS. This finding, which had the support of the BIAL Foundation, is in line with the reports of meditators, confirming that the phenomenological experience of reduced separation between the self and the external world may be related to the modulation of PPS representation.

Luca Simione, a researcher at the Institute of Cognitive Sciences and Technologies (Italy), stresses that this experimental investigation "offers crucial insights on the core mechanisms underlying the influence of mindfulness meditation on psychological well-being and social cognition, and potentially resonating with the Buddhist concept of anatta, or not-self."

More information: Salvatore Gaetano Chiarella et al, Mindfulness Affects the Boundaries of Bodily Self-Representation: The Effect of Focused-Attention Meditation in Fading the Boundary of Peripersonal Space, *Behavioral Sciences* (2024). DOI: 10.3390/bs14040306

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