

Redirecting attention after mind wandering during mindfulness breathing meditation increases heart rate in naïve participants but not in experienced meditators

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Statement of the Problem: Mind wandering (MW), the disengagement of attention from the immediate external environment to unrelated internal thoughts, has been suggested to have an inverse relationship with mindfulness and mindfulness meditation (MM), a state of nonjudgmental awareness of present-moment experience. However, the psychophysiological effects of MW on MM have not yet been exhaustively investigated. Therefore, we decided to study heart rate (HR) during MW vs. focused attention MM episodes, comparing expert meditators and naïve controls. Methodology & Theoretical Orientation: 28 MM meditators and 28 naïve controls participated in a MM breathing session. Participants were asked to report self-caught MW episodes, pressing a button each time they realized that their mind wandered from the breath. After each press, participants had to refocus on their breathing. We recorded physiological HR activity, considering ten-second intervals before (MW condition) and after (MM condition) the button press. We performed a repeated measures ANOVA considering the effects of MW vs. MM conditions, the group of subjects (meditators vs. naïve controls) and age, gender and the number of self-reported MW episodes as additional factors.

Findings: We found a significant main effect of condition ($F=6.867$, $p=0.012$), according to which HR during MM (mean= 70.5 ± 8.184) was higher than HR during MW (mean= 68.824 ± 7.985), but no significant main effect of group. However, we found a significant interaction of condition*group ($F=5.227$, $p=0.027$). Conclusion & Significance: Our data show that only naïve participants show increased HR during the intervals of MM after MW episodes (mean(MM)= 69.940 ± 8.299 ; mean(MW)= 67.387 ± 8.340) and not expert meditators (mean(MM)= 71.060 ± 8.187 ; mean(MW)= 70.261 ± 7.492). This may suggest that MM and MW episodes have different physiological consequences in meditators when compared with naïve people, whose responses may indicate a higher effort to reestablish a state of MM after a MW episode.

Biography

Sara Sorella has a research fellow at the University of Udine (Italy) where she studies the effects of meditation on mind wandering and positive emotions. Here she had the chance to integrate her neuroscientific (CLIAN Lab, University of Trento; CIMEC; SISSA), clinical (University of Trento) and mindfulness studies (Master in Mindfulness in Clinical Settings, Milano). She is a psychologist and a certified instructor of Mindfulness-Based Interventions, and she holds a PhD in Cognitive Sciences from the University of Trento. She is author of different publications including book chapters and scientific articles in international journals.

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