Preschoolers can meditate. Electrodermal activity during mindfulness meditation in a randomized controlled trial.

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Background and objectives

Mindfulness meditation has been found beneficial for preschool-aged children's cognitive and social-emotional development (Flook et al., 2015), however, the physiological mechanisms during meditation and its short-term effects are less studied in this age group. We investigated whether, in line with previous studies with adults (Travis, 2001; Sudheesh & Joseph, 2015), children also show elevated levels of electrodermal activity (EDA) during meditation as compared to listening to a narrative story which might indicate higher cognitive effort during meditation.
Furthermore, we also aimed to investigate whether preschool-aged children are less easily distracted and thus more immersed during meditation. This would suggest that listening to meditation instructions is a different activity and might imply that children are capable of controlling their attention during meditation. In addition to EDA levels, we measured the level of cortisol hormone of the participants before and after meditation as an objective biomarker of stress. A decreased level of cortisol was assumed following meditation.

Methods

We conducted a randomized controlled experiment with a within-subject design with university students (n = 10) and preschool-aged children (n = 12). The participants listen to an orally presented 5-minute long, child-friendly mindfulness meditation (breathing) and a matched narrative story (active control condition) in a counterbalanced order, during which participants' EDA was recorded. Both of the recordings were presented with two short whistles inserted in the middle and around the end of the 5 minute in order to assess distractibility. Additionally, cortisol levels before and after listening to the recordings were measured.

Results

Our preliminary findings suggest that preschoolers showed a steeper increase in their EDA signal during meditation as compared to listening to the story. In adults no effect of condition appeared regarding the EDA level.

Discussion

The present preliminary results show different EDA patterns during meditation and listening to a story, which reflect a different mental state as compared to when simply listening. The steeper increase in EDA might suggest that children put higher cognitive effort into practicing effortful control over their attention during meditation. Results on event-related EDA response (two whistles) and cortisol response will also be discussed.