

25 May 2021

Editor

*Social Cognitive and Affective Neuroscience*

Dear Editor,

Lindsey Tepfer, Nicole Henninger, Susan Perlman, Vishnu Murty, Chelsea Helion and I would like to submit our manuscript “Developmental differences in emotional representation between

prefrontal and subcortical structures” for possible publication in *Social Cognitive and Affective Neuroscience.*

In this research, we use representational similarity analysis to determine whether children and adults demonstrate differences in affective neural patterns both by valence and within the amygdala, nucleus accumbens, and ventromedial prefrontal cortex. Our findings suggest that adults demonstrate less pattern similarity than children, suggesting greater variation in their affective representations. Furthermore, we find that children generate differences in valenced representation; an effect not mirrored among their older counterparts. Finally, we found that the ventromedial prefrontal cortex generated greater pattern similarity than both subcortical structures among children, but no differences in region were observed among adults. We believe these findings support the notion that people experience a maturation from visceral emotional responses which merely assess how evocative an affective experience is, to more evaluative analyses which modulate emotional responses between childhood and adulthood.

While a great deal of effort has been directed towards exploring neural affective changes in early development, children remain a difficult population to reliably image. Furthermore, relatively few fMRI studies have explored affective representation using multivariate pattern techniques. Most investigations in the extant literature employ univariate methods, which obscure the more granular voxel-level differences that might be present among adults and children. We believe that this research provides novel insight to the developmental affective literature, providing a possible mechanism which might influence the documented downstream cognitive and behavioral differences between adults and children. Due to the topic and innovative methodology of this project, we believe this research will be of interest to psychologists in varied concentrations, including those who study emotion, neuroscience, development, and cognitive representations of multidimensional information. We believe that this research would be of interest to the readership of *Social Cognitive and Affective Neuroscience*, and we look forward to receiving your feedback on our research.

All the best,

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