
Cerebral correlates of emotional intensity perception in ASD

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Abstract

One judges differently the value of a joke if the interlocutor just grins or if he blows a full smile up. Amongst many other examples, this illustrates how crucial to our everyday social interactions is the ability to evaluate with accuracy the intensity of a person’s emotional expression. Autism spectrum disorders (ASD) are characterized by a triad of specific deficits including impaired social interactions, lack of communication and stereotypic behaviors. In this study, we investigate their difficulty in processing emotional facial expressions. 11 adults with ASD and 11 age and IQ matched controls participated in a blocked fMRI paradigm. We investigated the cerebral substrates of comparative judgements of intensity of happiness expressed by facial expressions. The putative existence of an emotional distance effect was explored by selecting target pairs made of close or far intensity of facial emotional expression of happiness. Five different distance values were used. As a control non-emotional condition, subjects had to compare clouds of dots with different numbers of white and black dots. At the behavioral level, our results reveal that ASD and Control subjects have similar performance in the task and show a distance effect for both emotional and neutral stimuli. fMRI results however show that this apparently normal behaviour of ASD subjects is associated with abnormal activation of extrastriate visual areas and amygdala in ASD in the emotional condition, suggesting the use of an alternative cognitive strategy to perform the task.

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