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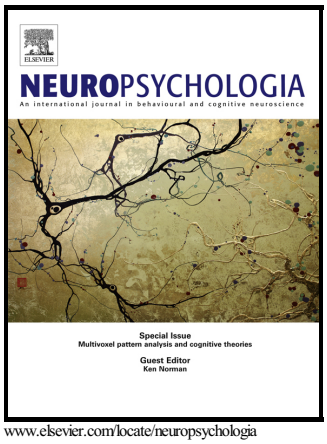

www.elsevier.com/locate/neuropsychologia

PII: S0028-3932(15)30008-7
DOI: http://dx.doi.org/10.1016/j.neuropsychologia.2015.04.027
Reference: NSY5573

To appear in: *Neuropsychologia*

Received date: 27 August 2014
Revised date: 5 April 2015
Accepted date: 24 April 2015

Cite this article as: Alma Gharib, Daniela Mier, Ralph Adolphs and Shinsuke Shimojo, Eyetracking of Social Preference Choices Reveals Normal but Faster Processing in Autism, *Neuropsychologia,* http://dx.doi.org/10.1016/j.neuropsychologia.2015.04.027

EYETRACKING OF SOCIAL PREFERENCE CHOICES REVEALS NORMAL BUT FASTER PROCESSING IN AUTISM

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Abstract

People with autism spectrum disorder (ASD) have been reported to show atypical attention and evaluative processing, in particular for social stimuli such as faces. The usual measure in these studies is an explicit, subjective judgment, which is the culmination of complex-temporally extended processes that are not typically dissected in detail. Here we addressed a neglected aspect of social decision-making in order to gain further insight into the underlying mechanisms: the temporal evolution of the choice. We investigated this issue by quantifying the alternating patterns of gaze onto faces, as well as nonsocial stimuli, while subjects had to decide which of the two stimuli they preferred. Surprisingly, the temporal profile of fixations relating to choice (the so-called "gaze cascade") was entirely normal in ASD, as were the eventual preference choices. Despite these similarities, we found two key abnormalities: People with ASD made choices more rapidly than did control subjects across the board, and their reaction times for social preference judgments were insensitive to choice difficulty. We suggest that ASD features an altered decision-making process when basing choice on social preferences. One hypothesis motivated by these data is that a choice criterion is reached in ASD regardless of the discriminability of the options.

Keywords

Autism; Social; Eye-tracking; Gaze bias; Reaction Time; Decision-making

1. INTRODUCTION

Autism Spectrum Disorder (ASD) is a pervasive developmental disorder characterized by impairments in social and cognitive processing. One of the core diagnostic criteria for this disorder is a deficit in social communication and social interaction (DSM-V), which presents in real-life interactions as an inattention to faces and reduced eye contact, in addition to more complex social deficits such as difficulty recognizing emotional expressions and relating to others. Several