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Are emotion recognition abilities related to everyday social functioning in ASD? A meta-analysis

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ABSTRACT

Background: Most developmental theories of autism spectrum disorders (ASD) emphasize a link between the ability to infer others' emotional states with their everyday social functioning. However, rarely has this association been empirically examined in this population.

Methods: We conducted a meta-analysis to quantitatively summarize correlations between performance on facial emotion recognition tasks and theoretically related variables broadly related to social functioning and other cognitive abilities.

Results: Sixty-two correlation coefficients from 27 separate articles met our inclusion criteria. Correlations between the ability to recognize facial expressions (FER) and each category of variables were moderate but significant in the expected direction. FER was positively correlated with age, nonverbal and verbal intelligence, Theory of Mind, and adaptive functioning, and negatively correlated with alexithymia and higher ASD symptoms.

Conclusions: The findings of this meta-analysis indicate that FER abilities represent an important social cognitive ability given its relation to real-world social behavior and other characteristics and cognitive abilities. However, the striking lack of studies in this area calls for more research to gain a clearer understanding of the developmental significance of FER, especially in relation to the broader social impairment characteristic of ASD.

Contents

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1. Introduction

1.1. Overview

> *"Human faces convey information about identity, lip movements, gaze direction, and emotion, and are the primary and most powerful source of information mediating emotional and linguistic communication as well as social interactions"* (Gepner, Deruelle, & Grynfeltt, 2001, p. 37).

Autism spectrum disorder (ASD) is a complex neurodevelopmental disorder characterized in part by difficulty forming relationships, and deficits in verbal and nonverbal communication (APA, 2013). In the last three decades an abundance of experimental research has been published that compared the ability of participants with and without ASD to accurately identify the emotional states of others based on their facial expressions, body language and other contextual information. Although findings have been equivocal and dependent on a variety of variables including demographic factors, nature of the task demands, and how the dependent variables are measured (Harms, Martin, & Wallace, 2010), the majority of studies show that the ability to accurately recognize others' emotions is impaired in participants with ASD compared to neurotypical comparison groups (see Gaigg, 2012; Harms et al., 2010; Uljarevic & Hamilton, 2013 for reviews).

It has long been argued that the ability (or lack thereof) to recognize others' emotional states from their facial expressions has wide reaching influences on other areas of social functioning. It is thought that emotion recognition abilities may be a critical mechanism by which observers respond to others empathically and competently, and modify their own behavior adaptively based on the emotional signals of others (Izard et al., 2001). As Jones et al. (2011) described, "Basic emotion recognition is a fundamental building block of more sophisticated emotional and social understanding and establishing the degree of deficit in ASD is important for ascertaining at what level social-emotional understanding begins to break down for these individuals" (p. 275). Despite these purported links between emotion recognition and social functioning more broadly, surprisingly little research has explored which, and to what degree, other variables are continuously related to emotion recognition abilities in individuals with ASD. Instead, the primary motivation of the bulk of research in this area has been to uncover group differences between ASD and control groups, making it difficult to understand the real world impact of emotion recognition difficulties. The ability to decode others' emotional states from nonverbal information such as facial expressions is arguably an important social cognitive ability; yet, it is relatively unknown how this ability contributes to real world social functioning in ASD.