

<CT>Expanding the Critique of the Social Motivation Theory of Autism with Participatory and Developmental Research

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<C-AB>Abstract

We argue that understanding of autism can be strengthened by increasing involvement of autistic individuals as researchers and by exploring cascading impacts of early sensory, perceptual, attentional, and motor atypicalities on social and communicative developmental trajectories.

Participatory action research that includes diverse participants or researchers may help to combat stigma while expanding research foci to better address autistic people's needs.

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As a participatory team of autistic and non-autistic researchers, we support Jaswal & Akhtar's (J&A's) critique of the social motivation theory of autism and agree that there are compelling alternative explanations of atypical behaviors in autism. We also advocate for greater inclusion of autistic people as research participants and researchers (see, Milton, 2014). We believe that J&A's argument could be strengthened by a broader focus on the developmental origins of autistic people's domain-general challenges and experiences with others (see Kapp, 2013). This commentary expands upon the article's evidence, methods, and suggestions for interventions and further research.

Low eye contact was among the four behaviors analyzed by J&A, and through it we extend their view that autism relates to sensory, perceptual, attentional, and motor systems. Infant sibling and other developmental autism research suggests that differences in these systems emerge at least as early as atypical social behaviors and may *underlie* them (Gallagher & Varga 2015; Gliga et al. 2014; Rogers 2009). For example, atypically *high* eye contact and social attention within the first seven months predicts autism as well as face recognition, language, and motor difficulties in toddlers (Jones & Klin 2013; Klerk et al. 2014; Pineda et al. 2015; Young et al. 2009). This apparent paradox of strong early social responsiveness to caregivers' faces, such as eye contact, predicting autism (Clifford et al. 2013, Del Rosario et al. 2014, Rozga et al. 2011, Zappella et al. 2015), with *diminished* responsiveness predicting infant siblings who *fail* to meet

criteria (Clifford et al. 2013), may lie partly in visual and auditory hypersensitivities (see Cohen et al. 2013). The early decline in eye contact in infants later diagnosed with autism (Jones & Klin 2013) may partly occur because autistic people often find eye contact intense and aversive, according to both self-report and brain scans (e.g., Dalton et al. 2005; Gernsbacher & Frymaire, 2005; Tottenham et al. 2014). Conversely, and likely in part because of audiovisual synchrony (see Bahrick 2010), lip-reading while listening enhances autistic people's communicative competence from infancy through adulthood to an atypical extent (Elsabbagh et al. 2014; Falck-Ytter et al. 2010; Klin et al. 2002; Norbury et al. 2009; Tenenbaum et al. 2014), which helps fulfill J&A's call for explorations of ways autistic people express social motivation.

The case of eye contact brings us to another point: while we appreciate J&A's use of autistic testimony, we believe their argument could be strengthened by drawing upon a greater variety of research that includes systematic study of autistic people's perspectives. For example, Tottenham et al. (2014) combined self-report with fMRI and eye-tracking. Turning to the area of interpersonal interaction, research using a variety of methodologies has found that autistic people self-report interest in relationships (e.g., Gillespie-Lynch et al. 2017b; Strunz et al. 2017). Although many autistic people say they want to connect with others, they report that anxiety and self-regulation difficulties can contribute to their atypical behaviors and complicate their interactions (e.g., Kapp et al. 2011). Many autistic people report that they have empathy (Gillespie-Lynch et al. 2017b), and research has found robust evidence for at least typical levels of emotional empathy and sympathy (e.g., Jones et al. 2010; Smith 2009), heightened distress at others' suffering (e.g., Rogers et al. 2007), reduced prejudice (Birmingham et al. 2015; Chien et al. 2014; Dewinter et al. 2015; Kirchner et al. 2012; Wilson et al. 2011), and decreased reliance

on social stereotypes (Hirschfeld et al. 2007; Zalla et al. 2014). Not only do autistic people often prioritize social topics in their conversations (Fletcher-Watson et al. 2013) and goals (Mattys et al. 2018), but autistic parents and spouses tend to feel satisfied with their relationships (Lau & Peterson 2011). Even social motivation theorists of autism acknowledge autistic people's close attachments to parents and offspring and interest in sexual and romantic relationships (Chevallier et al. 2012). Autistic people report relating to others *differently*; research has found them to have atypically wide developmental diversity in their relationships (Bauminger-Zviely et al. 2014; Gunn et al. 2014) and to often relate better to fellow autistics (Komeda 2015; Rosqvist 2012; Strunz et al. 2017).

Despite their empathy, interest in relationships, and reduced prejudice, autistic people suffer exceptional rates of victimization (Sreckovic et al. 2014), especially when they initiate social interaction, have *higher* skills, or appear *more* typical (Kapp 2018). These hardships may justifiably lead autistic youth to develop low expectations for social reciprocity (Cage et al. 2013). Similarly, autistic adults report attempting to “pass” as neurotypical to fit in and make connections (Hull et al. 2017), but they experience more depression (Cage et al. 2018) and suicidality (Cassidy et al. 2018).

We have suggestions for future research and interventions. First, we believe that autistic people should be involved as co-researchers rather than merely as research participants (Nicolaidis et al. 2011; Wright et al. 2014). This participatory research should involve autistic researchers and participants with diverse backgrounds and communication support needs. Such research is likely to increase understanding of autistic people's needs. For example, Gillespie-

Lynch et al. (2017a) used participatory methods to develop a curriculum for a peer-mentorship program for autistic college students, many of whom expressed the need for training in self-advocacy and preferred inclusive programming aimed at increasing accessibility for all students. Participatory research may help to illuminate autistic people's atypical expressions of social motivation, such as hyperimitation of other people's actions, especially among autistics with greater interpersonal difficulties (Sowden et al. 2016, Spengler et al. 2010). Like echolalia (as argued by J&A), hyperimitation may be pathologized (as "echopraxia") in autistics but accepted (as "mirroring") in non-autistics. Second, we call for effective interventions to increase knowledge of autism (and thus reduce stigma), reduce bullying, and improve supports for autistic people (Gillespie-Lynch et al. 2015; Sasson & Morrison 2017). Such empirically based interventions can engage with the "double empathy problem" – the mutual difficulties that autistic and non-autistic people have in understanding each other (Milton, 2012) – by helping interaction partners understand and support autistic people.

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<RFT>References [Steven K. Kapp, Emily Goldknopf, Patricia J. Brooks, Bella Kofner, and Maruf Hossain] [SKK]

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