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Using and reasoning about social strategies in autism spectrum disorder in everyday situations



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ABSTRACT

Although a substantial amount of previous work has been dedicated to the study of the possible theoretical mechanisms underpinning autism spectrum disorder (ASD), little research has examined the types of difficulties experienced by individuals in their everyday social functioning. University students with ASD and matched control participants performed the Social Strategy task. In this, they read a range of descriptions of social interactions, all ending with an awkward question asked by the story main character. The types of strategies they used to answer the awkward questions were examined. Compared to control participants, those with ASD used a more negative emotional tone in responding, generated more simple strategies including acquiescence or refusal, and fewer sophisticated strategies that considered all parties' perspectives. In a novel task condition, participants rank-ordered simple and sophisticated strategies, and gave justifications for their use. Rank-ordering did not differentiate the groups. Justifications given by those with ASD for simple strategies were more practical and less often character-based than those given by control participants; the groups did not differ in the justifications given for sophisticated strategies. The possible explanations of these findings and implications for informing current intervention programmes are considered.

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1. Introduction

It is well established that autism spectrum disorder (ASD) is characterised by difficulties in social functioning (see e.g., Travis and Sigman, 1998). Much of this work has focused on ability to empathise. It is currently unclear whether emotional empathy, i.e., the ability to resonate emotionally with others, is intact in ASD (Dziobek et al., 2008; Grove, Baillie, Allison, Baron-Cohen, & Hoekstra, 2014). There is more robust evidence of impairment in cognitive empathy, or ability to take others' perspectives (e.g., Rueda, Fernández-Berrocal, & Baron-Cohen, 2015), and this is thought to underpin most of the social difficulties associated with ASD (e.g., Baron-Cohen, 2000). Deficits in cognitive empathy have been demonstrated both on simple false-belief tasks (e.g., Happé, 1994; Wimmer & Perner, 1983), and also on more advanced tasks approximating the demands of everyday interactions (e.g., Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001; Loveland, Pearson, Tunali-Kotoski, Ortegon, & Gibbs, 2001; Spek, Scholte, & Van Berckelaer-Onnes, 2010).

Although individuals with ASD typically show impairment on the more advanced measures, there have still been instances where performance was similar to control participants, at least in some respects (e.g., Scheeren, de Rosnay, Koot, & Begeer, 2013). For example, adults with ASD were found to infer correctly the mental state of someone with whom they had

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just interacted (Ponnet, Buysse, Roeyers, & De Corte, 2005), and to link complex emotional responses to the correct situation (e.g., feigning a positive reaction to an unwanted gift; Cassidy, Ropar, Mitchell, & Chapman, 2014). It has been suggested that preserved aspects of social performance in ASD may rely on compensatory mechanisms such as knowledge acquired through prior social learning and experience (Frith, 2004; Hill & Frith, 2003). This has been supported by recent qualitative work, in which participants with ASD reported that they often observe how others act in different situations (Carrington, Templeton, & Papinczak, 2003; Müller, Schuler, & Yates, 2008).

Factors such as task demand and the availability of relevant cues are likely to influence performance in ASD. For instance, generating problem solutions in everyday situations has been shown to be impaired in those with ASD, although when presented with different alternative solutions they were able to make appropriate choices (e.g., Channon, Crawford, Orlowska, Parikh, & Thoma, 2014). In another study (Callenmark, Kjellin, Rönnqvist, & Bölte, 2014), adolescents with ASD did not differ from control participants in rating the appropriateness of different social interactions when asked to select from a range of options, but gave less sophisticated verbal rationales when required to justify such judgements. Generating rationales may place heavier demands on mentalising ability, whilst selecting from options or giving ratings may bypass the need to employ mentalistic processes, so that compensatory strategies are sufficient to provide correct approximations.

The present study aimed to extend our understanding of impaired vs. preserved aspects of everyday social functioning by examining both the nature of the strategies that high-functioning adults with ASD use to manage everyday social situations, and also their ability to reason about these effectively. This study extended previous work by Channon, Collins, Swain, Young, and Fitzpatrick (2012) examining how participants high vs. low in self-reported social skill responded to descriptions of interactions ending with an awkward question by the main character (the 'Social Strategy' task). Those lower in skill generated more simple strategies that either complied fully with the requests or refused outright, whereas those higher in skill generated more sophisticated strategies involving compromises or justifications, and also adopted a more polite emotional tone. Participants did not differ with respect to perceived awkwardness.

In the present study, participants with and without ASD completed the original Social Strategy task (referred to here as the 'application' condition). It was predicted that those with ASD would perform in a similar way to the low skill group in the Channon et al. (2012) study, using fewer sophisticated strategies and a less polite emotional tone, but not differing in perceived awkwardness compared to the control group. They also completed a novel condition (the 'reasoning' condition) which examined ability to reason about descriptions of simple and sophisticated strategies to manage the same situations. It was expected that, compared to control participants, those with ASD would generate fewer rationales referring to the characters on the more demanding task of explaining why people might use each strategy, but would not differ on the less demanding task of rank-ordering the strategies in terms of social appropriateness.

2. Methods

2.1. Participants and procedure

Nineteen university students (13 males, 6 females) with ASD were recruited. They were identified by advertising within the university for students who had been given a diagnosis of Asperger's syndrome or autism by a clinician. The diagnosis of ASD was confirmed at the time of the study through the use of a semi-structured interview to assess whether they currently met DSM-5 criteria for ASD. The interview was devised by the research team, which included two clinicians with extensive experience in the field, who trained the first author to conduct the interviews. Nineteen control participants (13 males, 6 females) were also recruited by advertisement at the same university. They met the inclusion criteria and matched the group with ASD with respect to gender and age. All control participants were screened for the presence of symptoms related to ASD using the interview procedure described above.

Inclusion criteria were fluency in English, age between 18 and 30, and a Wechsler Test of Adult Reading (WTAR) standard score of 85 or above (Wechsler, 2001). This measure was chosen since it has been shown to have good validity and reliability with respect to predicting IQ (e.g., Spreen and Strauss, 2006), and is relatively cost- and time-effective compared to other measures of intellectual ability. All participants were relatively high-functioning, since they were all students at a leading UK university. Participants who reported a history of learning disability or illness or injury involving the brain were excluded.

There was no significant difference between the groups in age (ASD group mean = 22.11, SD = 3.30, control group mean = 21.58, SD = 3.02), t(36) = .51, p = .611, d = .17, or WTAR standard scores (ASD group mean = 115.42, SD = 8.85, control group mean = 111.00, SD = 9.82), t(36) = 1.46, p = .154, d = .47.

All participants read an information sheet before taking part in the study, which outlined the rationale and procedure of the study. They provided written, informed consent, and were paid at the end for their participation. The study was approved by the UCL Research Ethics Committee and carried out in accordance with the Declaration of Helsinki as revised in 2000.

2.2. The Social Strategy task, 'application' condition

The original Social Strategy task (termed here the 'application' condition) (Channon et al., 2012) assessed the types of strategies that people use to respond to everyday awkward social situations. It consists of 10 vignettes describing social interactions between participants and a main character (see Appendix A for the full list of vignettes). Each scenario ends with the character asking the participants a question, which involves either offering or requesting a favour, or an opinion. The

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