Autism and empathy: what are the real links?

This month's editorial continues an occasional theme of myth-busting in the journal, this time focusing on associations between autism and empathy. We argue that this is a fraught area of research where flawed terminology, measurement and theory have all contributed to the mis-characterisation of autistic people as lacking empathy, to severely negative effect.

Defining Empathy

There is no standard, agreed-upon definition of empathy used in research. One dictionary definition is "*the ability to understand and share the feelings of another*" with synonyms including *"affinity with, rapport with, sympathy with, understanding of, sensitivity towards, sensibility to, identification with, awareness of, fellowship with, fellow feeling for, like-mindedness, togetherness, closeness to*." In the context of this long and varied list of synonyms, it is easy to see both why having the capacity for empathy is often seen as a defining characteristic of being human [1], and why empathy is such a hard concept to pin down, and consequently to test.

We can more clearly define empathy by breaking it down into component stages. To feel empathy, an individual must first notice that someone else is feeling something – this requires attention to that person's outward signs of their internal state. Some autistic people, especially young children and those with concurrent intellectual disability, may be less likely to detect someone else's emotional cues, since we know that orienting to people is less likely in autistic children [2] and perhaps also different in adults [3; although this is contested, 4]. Another factor that may result in reduced social attention is monotropism – the autistic-led theory that autism is defined by a single-minded attentional system, that prefers to take in one information source at a time [5]. A monotropic focus might contribute to missing the social cues that other people display, when something else is the focus of attention.

Step two in the empathy process, having noticed someone else's emotional behaviour, is to correctly interpret that behaviour. Is this person crying with happiness or sadness? Is this laughter signalling joy, or is it a dry, sarcastic guffaw of frustration? This may be another step which is harder for autistic people [6], especially (as we will see in more detail below) if that

person has trouble identifying their own feelings, or if that person is expected to interpret the emotional signals of someone from another group – i.e. non-autistic people.

Step three, having noticed and correctly interpreted the emotional signals of another person, is to feel those feelings – to have affinity for, resonate with, or mirror - how that person feels. This is the step to which we most often refer when we talk about empathy colloquially. It is also the step that is least easy to measure, potentially the most important, and the only component unique to empathy (i.e. it is not shared by another other socio-cognitive process). It is also the step that – we argue – is not different in autism.

There's one final step where an autistic person might be incorrectly judged as lacking empathy, and that is in deciding upon and expressing a response. Responses to the emotional signals of others are heavily dictated by societal norms and expectations, necessarily defined by the non-autistic majority. This is another place where autistic people might superficially seem to lack empathy, when in fact they're simply not following the same response-script as a neurotypical person.

The first requirement then for understanding the manifestation and experience of empathy in autism is to recognise the social attentional, emotion processing, and normative behavioural processes that surround the phenomenon. If we don't separate feelings of empathy from these other social and cognitive factors, then we will underestimate empathy in autistic people, while also failing to develop and test a comprehensive theory of empathy.

Measuring Empathy

Studies claiming evidence of reduced empathy amongst autistic people often report on data from the *Empathising Quotient*, a 60-item (or abbreviated 40-item) self-report measure [7]. Superficially it is clear to see how this measure merges the separate components required to successfully *express* empathy. For example, items include: "*I am quick to spot when someone in a group is feeling awkward or uncomfortable*" (step one, noticing another's feelings); "*Other people tell me I am good at understanding how they are feeling and what they are thinking*" (step two, correctly interpreting another's feelings); "*Seeing people cry doesn't really upset me*" (step three, feeling empathy); and "*If anyone asked me if I liked their haircut, I would reply truthfully, even if I didn't like it*" (step four, responding in line with social norms).

This qualitative appraisal is somewhat supported by factor analysis revealing three candidate sub-scales for *cognitive empathy*, *emotional reactivity* and *social skills* [8,9] yet total scale scores are still most frequently reported.

The dominance of the Empathising Quotient in the autism literature is not surprising. Self-report measures are quick and inexpensive. But the use of such measures with an autistic volunteer group is surprising. The myth of an empathy deficit in autism is now so well ingrained, that for an autistic volunteer to report they do not lack empathy is to either question the views of the large majority of medical and scientific professionals, or even to deny their diagnosis. As such, they may report empathy deficits even when they frequently experience empathic feelings. The questions in such measures are also often vague and imprecise: it is unclear to whom, or to what group, you should compare yourself; how to know whether you are quick to notice things; and several questions rely on another's perception of your competence. When these others are neurotypical individuals who often fail to recognise the emotional and mental states of autistic individuals [10,11], it is clear to see how such measures may provide information which is of limited value.

Existing experimental measures of empathy may play a vital role in illuminating the true nature of empathy in autism, and distinguishing it from attention, emotion recognition, and normative response behaviour. For example, Tania Singer and colleagues [12] assess empathic brain activity using a pain paradigm. First, brief electric shocks are given to the participant to map those areas of the brain that respond when the participant is in pain. Second, activity in those brain areas is monitored when electric shocks are given to the participant's loved one. Using such a technique one can identify empathic brain activity – pain in the participant's brain when their loved one is in pain. When assessed using this paradigm, a group of autistic individuals demonstrated typical empathy for pain [13]. Use of these measures, and development of others that are more accessible to people with intellectual disabilities or language delays, and which do not rely on pain, is essential if we are to gain an accurate understanding of empathy in relation to autism.

Theorising about Empathy

A further problem with much of empathy research is that empathy is often bundled together or conflated with other social cognitive processes like theory of mind. This conflation is a consequence, at least in part, of the paucity of cognitive models of empathy and an agreed-upon definition of empathy. Such conflation results in empathy being misattributed as a central feature of autism. Two key developments in our theoretical models of autism are helping us distinguish between empathy and inferring the complex mental states of others. First, the field is benefitting from a growing focus on the contribution of alexithymia to what have been thought to be symptoms of autism. Alexithymia is distinct from autism - it is neither necessary not sufficient for an autism diagnosis, and there are autistic individuals without alexithymia and alexithymic individuals without autism – but alexithymia is much more prevalent in autistic (and other neurodivergent) people than in the neurotypical population. New evidence suggests that autism is associated with atypical theory of mind but not empathy, while alexithymia is associated with atypical empathy but not theory of mind [14].

The second key development is a new focus on the out-group status of autistic people in relation to the non-autistic majority. A growing body of research finds that processes we have previously identified as "deficits" in autism are in fact better understood as interactive and communication challenges that operate in both directions across the autistic / non-autistic divide. Damian Milton describes this powerfully in his writing, as "the double empathy problem" [15]. Key results here include evidence that non-autistic people find it hard to judge the emotional expressions of autistic people [10,11]. In an elegant design, Gernsbacher and colleagues modified the *Autism Quotient* to examine the role of in-group / out-group status on trait distributions, finding that adapting the measure to emphasise out-group status increased trait scores for autistic and non-autistic people [16]. Very recent research shows that when we examine the interactions of two autistic people, we see higher rapport than for autistic / non-autistic pairs, both as rated by people in the interaction, and by naïve observers [17]. Looking back to our dictionary definition of empathy, we can see synonyms include "*affinity with… identification with… fellowship with".* In this context, more work is needed to understand the way in which empathy might be felt and expressed between two autistic people.

Negative Impact in the Community

Of course, empathy is not the only psychological construct that suffers from a lack of clear definitions or precise, objective measures. However, empathy – in relation to autism – is worthy of our particular attention because of the potential for negative impact in the lives of autistic people. All too often, autism is characterised by that supposedly defining feature. In some literature, lack of empathy has been used to link autism with terrorism [18], while the existence of autistic people has been used as a counter argument for a specific philosophical position: *"Kennett argues that the case of autism renders the empathy thesis untenable, for whilst autistic individuals lack empathy, they are capable of moral judgment and deliberation…"* [19, p.79] Non-autistic people should not need to deploy a great deal of empathy in order to understand how damaging this narrative has been, and continues to be, to autistic people. Even worse, we might legitimately make an association between violations of the human rights of autistic people in residential care services (tragically frequent) and the use of language that dehumanises them – which includes labelling autistic people as lacking empathy, and (a short step) even lacking feelings all together [20].

How can we do better? A first step is certainly to take into account what autistic people tell us about their experience of empathy. Autistic people have described that they experience "…*hyperarousal of the empathic system*…" [21, p.189] or an "…*intense, uncontrollable empathy…*" [22, p.59]. In an online article, Hari Srinivasan provides the following account of autism and empathy:

> *"there are also many theories about autism, including the notion that autistics lack empathy… When you have sensory dysfunction, you are overly turned to the environment, which includes all the emotions of the people you are interacting with – even the unspoken emotions on their part. The result can be an emotional roller-coaster ride for me as I try to deal with all this bombardment of information in addition to their words. Neurotypical people may assume that we autistics are incapable for empathy, when in fact, we just happen to express it differently. Reactions by way of our facial*

> *expressions and body language may not match what society is used to and expects."*[1]

These accounts point to a potentially fruitful seam of research, investigating how the sensory profile of autistic people mediates their experience of their own and others' emotions. Recent research has further indicated that autistic people may be more prone to object personification [23], suggesting that the autistic manifestation of empathy could not only be more intense but also more all-encompassing that the neurotypical model. Research on autism and empathy is valid and warranted, but must be built on solid methodological foundations as well as integrated with perspectives from lived experience.

References

1. Decety, J., & Cowell, J. M. (2014). The complex relation between morality and empathy. *Trends in cognitive sciences*, *18*(7), 337-339.
2. Mundy, P. (2018). A review of joint attention and social-cognitive brain systems in typical development and autism spectrum disorder. *European Journal of Neuroscience*, *47*(6), 497-514.
3. Chita-Tegmark, M. (2016). Social attention in ASD: a review and meta-analysis of eye-tracking studies. *Research in developmental disabilities*, *48*, 79-93.
4. Johnson, M. H. (2014). Autism: demise of the innate social orienting hypothesis. *Current Biology*, *24*(1), R30-R31.
5. Murray, D., Lesser, M., & Lawson, W. (2005). Attention, monotropism and the diagnostic criteria for autism. *Autism*, *9*(2), 139-156.
6. Harms, M. B., Martin, A., & Wallace, G. L. (2010). Facial emotion recognition in autism spectrum disorders: a review of behavioral and neuroimaging studies. *Neuropsychology review*, *20*(3), 290-322.
7. Baron-Cohen, S., & Wheelwright, S. (2004). The empathy quotient: an investigation of adults with Asperger syndrome or high functioning autism, and normal sex differences. *Journal of autism and developmental disorders*, *34*(2), 163-175.
8. Muncer, S. J., & Ling, J. (2006). Psychometric analysis of the empathy quotient (EQ) scale. *Personality and Individual differences*, *40*(6), 1111-1119.
9. Lawrence, E. J., Shaw, P., Baker, D., Baron-Cohen, S., & David, A. S. (2004). Measuring empathy: reliability and validity of the Empathy Quotient. *Psychological medicine*, *34*(5), 911-920.
10. Sheppard, E., Pillai, D., Wong, G. T. L., Ropar, D., & Mitchell, P. (2016). How easy is it to read the minds of people with autism spectrum disorder?. *Journal of Autism and Developmental Disorders*, *46*(4), 1247-1254.
11. Edey, R., Cook, J., Brewer, R., Johnson, M. H., Bird, G., & Press, C. (2016). Interaction takes two: Typical adults exhibit mind-blindness towards those with autism spectrum disorder. *Journal of Abnormal Psychology*, *125*(7), 879.
12. Singer, T., Seymour, B., O'doherty, J., Kaube, H., Dolan, R. J., & Frith, C. D. (2004). Empathy for pain involves the affective but not sensory components of pain. *Science*, *303*(5661), 1157-1162.
13. Bird, G., Silani, G., Brindley, R., White, S., Frith, U., & Singer, T. (2010). Empathic brain responses in insula are modulated by levels of alexithymia but not autism. *Brain*, *133*(5), 1515-1525.
14. Brewer, R., Happé, F., Cook, R., & Bird, G. (2015). Commentary on "Autism, oxytocin and interoception": Alexithymia, not Autism Spectrum Disorders, is the consequence of interoceptive failure. *Neuroscience & Biobehavioral Reviews*, *56*, 348-353.
15. Milton, D. E. (2012). On the ontological status of autism: the 'double empathy problem'. *Disability & Society*, *27*(6), 883-887.

[1] https://www.dailycal.org/2019/04/28/it-really-is-a-spectrum/

16. Gernsbacher, M. A., Stevenson, J. L., & Dern, S. (2017). Specificity, contexts, and reference groups matter when assessing autistic traits. *PloS one*, *12*(2), e0171931.
17. Crompton, C. J., Fletcher-Watson, S., & Ropar, D. (2019, September 24). Autistic peer to peer information transfer is highly effective. https://doi.org/10.31219/osf.io/j4knx
18. Palermo, M.T. (2013). Developmental disorders and political extremism: a case study of Asperger syndrome and the Neo-Nazi subculture. *Journal of Forensic Psychology Practice*, *13;4*, 341-54.
19. Aaltola, E. (2014). Affective empathy as core moral agency: Psychopathy, autism and reason revisited. *Philosophical Explorations*, *17*(1), 76-92.
20. Yergeau, M. (2013). Clinically significant disturbance: On theorists who theorize theory of mind. *Disability Studies Quarterly*, *33*(4).
21. Elcheson, J., Stewart, C., Lesko, A., Willey, L. H., Craft, S., Purkis, Y., ... & Campbell, M. (2018). *Spectrum Women: Walking to the Beat of Autism*. Jessica Kingsley Publishers.
22. Williams, D. (1998). *Autism and sensing: The unlost instinct*. J. Kingsley.
23. White, R. C., & Remington, A. (2019). Object personification in autism: this paper will be very sad if you don't read it. *Autism*, *23*(4), 1042-1045.