research requires a common language in order to facilitate discovery – I need to know that what I am measuring is equivalent to something of the same name measured in another country by another researcher at another time. Thus, instruments such as the ADI-R and ADOS (considered gold standards in ASD research) are vital. They also allow for meaningful comparison of groups – it is only when the cut-offs are applied rigidly that they become less useful, and this was not the case in our research.

However, a tremendous amount of heterogeneity exists among people with ASD (those who meet current categorical definitions), let alone those who have some symptoms but do not meet full diagnostic criteria (the broader autism phenotype). The challenge, then, is what to do with individuals who lie in different places along the spectra that comprise a standard ASD conceptualisation. As Fitzgerald rightly points out, it is those individuals who have independently learned or been supported to cope with their differences in a way that allows them to function in a 'neurotypical' society who are missed and excluded by the diagnostic categories that the ADOS and ADI-R conform to. However, simply because they appear to be functioning well does not mean that they are not experiencing difficulties – I agree with Fitzgerald. It was my experience conducting this research that, for many participants, it was actually because of the pressure of coping, or because they were not recognised as struggling, that many individuals got into difficult circumstances that precipitated the onset of psychosis or other serious mental health problems – an observation that is unsurprising for many clinicians, I'm sure.

The challenge for research and clinical practice, then, is to find a way to bridge the gap between rigid diagnostic categories and representative samples. This is a problem for psychiatry as a whole, not just those interested in certain conditions, which makes innovations such as the research domain criteria initiative from the National Institute for Mental Health so relevant and interesting.[2]

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2 Sanislow CA, Pine DS, Quinn KJ, Kozak MJ, Garvey MA, Heinssen RK, et al. Developing constructs for psychopathology research: research domain criteria. *J Abnorm Psychol*, 2010; **119**: 631–9.

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doi: 10.1192/bjp.211.2.117a

The evidence base and readability of Freeman *et al* on virtual reality for treating delusions

I commend Freeman *et al*[1] for their innovative research using virtual reality in the treatment of persecutory delusions. The rather 'soft' finding - probably valid, but hardly surprising – is: 'Cognitive therapy using virtual reality could prove highly effective in treating delusions'.

I have concerns about the evidence base of the study, that is the design, the data, the sample and the statistical methodology. Each of these concerns interrogates the validity and reproducibility of the study.[2,3]

First, the sample size is extremely small – 30 participants. The consequences of this include overestimates of effect size and low reproducibility of results.

Second, 27 of the 30 participants were unemployed. There is little point to any research if one cannot extrapolate from one's sample to some broader reference population. For this, the sample should mimic the population in important ways. However, there is no discussion about the sampling, or the reference population to which extrapolation might be extended.

Third, neither the patients nor the researchers were masked to the randomisation allocations. This, surely, is a fundamental flaw of the experiment. A double-blind experiment should be used to ensure impartiality, and avoid bias, such as, for example, the Hawthorne effect.[4]

Fourth, the main outcomes – comparing the delusional conviction of the two groups at the beginning and end of testing, as well as their distress – were tested using ANCOVA. But in the results section the authors report: 'For ratings of conviction in paranoia, a gradual reduction across the scenarios for the threat belief testing group can be seen, whereas the conviction scores remain stable in the exposure group' (p. 64). This suggests that the two groups diverge over time, having different slopes, rather than the assumed homogeneous slopes in the ANCOVA model.

Fifth, the term 'repeated measures mixed model' covers a wide range of possible models, and leads one to expect a single model incorporating the repeated measures and random effects, not ten models as are presented in the online supplement. Further, none of the models is clearly articulated in mathematical form.

Sixth, there are no graphs to display the data or statistical results. Tay *et al*[5] propose the use of graphical descriptives to enhance research rigour, especially in psychology.

It appears that the article is written on two levels. The introduction and method sections, describing participants, design and virtual reality, are clear and lucid. By contrast, the evidence base of the article, discussing the data, models, analysis and results, is almost unintelligible. Further, the small sample size, sampling bias, lack of randomisation masking, lack of model specification and lack of statistical graphics, seriously undermine the study.

The phrase 'evidence-based research' has become popular in psychology. Thus, it is incumbent on readers, authors and journal editors to 'raise the bar' and demand higher standards of the evidence base of research studies.

1 Freeman D, Bradley J, Antley A, Bourke E, De Weever N, Evans N, et al. Virtual reality in the treatment of persecutory delusions: randomised controlled experimental study testing how to reduce delusional conviction. *Br J Psychiatry* 2016; **209**: 62–7.

2 Gardenier JS, Resnik DB. The misuse of statistics: concepts, tools, and a research agenda. *Account Res* 2002; **9**: 65–74.

3 McNutt M. Reproducibility. *Science*, 2014; **343**: 229.

4 McCarney R, Warner J, Iliffe S, van Haselen R, Griffin M, Fisher P. The Hawthorne Effect: a randomised, controlled trial. *BMC Med Res Method* 2007; **7**: 30.

5 Tay L, Parrigon S, Huang Q, LeBreton JM. Graphical descriptives: a way to improve data transparency and methodological rigor in psychology. *Perspect Psychol Sci* 2016; **11**: 692–701.

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doi: 10.1192/bjp.211.2.118

Community treatment orders and capacity to consent

We welcome Newton-Howes & Ryan's plea for a more restrictive use of community treatment orders (CTOs).[1] They have a heavy

impact on patients' rights, are largely ineffective[2] and are likely to damage the trust between patients and treatment teams, which is vital for sustained success in treatment. In this regard, the editorial rightly points out that the extensive use of CTOs is in contrast with the spirit and principles affirmed by the UN Convention on the Rights of Persons with Disabilities (CRPD). However, it still refers to the traditional binary distinction between capacity and incapacity, which has to be considered obsolete in light of the Convention.

The authors, citing the CRPD, exclude the use of CTOs for capacitous patients, admitting it for those who lack the capacity to decide on their treatment. However, it is precisely this distinction between capable and incapable individuals that the UN Committee on the Rights of Persons with Disabilities rejects as discriminatory. The Committee stresses how the traditional functional approach to capacity:

> 'attempts to assess mental capacity and deny legal capacity accordingly. It is often based on whether a person can understand the nature and consequences of a decision and/or whether he or she can use or weigh the relevant information. This approach is flawed for two key reasons: (a) it is discriminatorily applied to people with disabilities; and (b) it presumes to be able to accurately assess the inner-workings of the human mind and, when the person does not pass the assessment, it then denies him or her a core human right – the right to equal recognition before the law. In all of those approaches, a person's disability and/or decision-making skills are taken as legitimate grounds for denying his or her legal capacity and lowering his or her status as a person before the law. Article 12 [of the CRPD] does not permit such discriminatory denial of legal capacity, but, rather, requires that support be provided in the exercise of legal capacity'.[3]

As noted by Quinn,[4] the CRPD, in particular article 12, transfers the discourse concerning legal decision-making to a completely different context, in which the distinction between capacity and incapacity does not exist anymore. In this new landscape, the point is just how to put in place the right and less-invasive means of support for the person, independently of the category in which they might be pigeon-holed in consideration of their mental abilities.[5]

Therefore, the discussion on CTOs needs to be approached from this new perspective. In this regard, we argue that compulsory treatment, whether of in-patients or out-patients, mentally capable or incapable individuals, physical or mental illness, if at all can only be used in exceptional cases when (i) there is uncertainty about the will and preferences of the person and (ii) significant other rights (e.g. the person's health) are at stake.

The occasion to experience a system similar to that proposed by the CRPD with regard to psychiatric care arose in Germany in relation to coercive treatment for in-patients. Here, there are no legal provisions on CTOs, but the regulation on involuntary treatment in hospitals was suspended for several months following court rulings in 2011 and 2012. Therefore, there was no rule allowing coercive psychiatric treatment for patients with and without legal capacity, except in cases of justified emergency. The data collected in this period show how this legal void created very different situations from ward to ward. In some structures it caused an increase in other forms of coercion (e.g. physical restraint), but in others it led to a more limited use of involuntary and restrictive measures.[6] When coercive treatment for in-patients was reintroduced in 2013, the narrow criteria provided by the new law led to a sharp reduction in the use of this measure.[7] The application, in the context of CTOs, of a similar approach to that developed in Germany with regard to coercive treatment may lead to a step forward in promoting a system which is more respectful of patients' rights in psychiatric practice.

In conclusion, we support the call for a far more restrictive use of coercive treatment and suggest that, in light of General Comment No. 1 on Article 12 of the CRPD,[3] this should apply to out-patients and in-patients.

1 Newton-Howes G, Ryan CJ. The use of community treatment orders in competent patients is not justified. *Br J Psychiatry* 2017; **210**: 311–2.

2 Kisely SR, Campbell LA. Compulsory community and involuntary outpatient treatment for people with severe mental disorders. *Cochrane Database Syst Rev* 2014; **12**: CD004408.

3 Committee on the Rights of Persons with Disabilities. General Comment No. 1. Article 12: Equal recognition before the law (CRPD/C/GC/1 eleventh session, 30 March–11 April). ONHCR, 2014 (http://www.ohchr.org/EN/HRBodies/CRPD/Pages/GC.aspx). Accessed 31 May 2017.

4 Quinn G. Personhood and Legal Capacity. Perspectives on the Paradigm Shift of Article 12 CRPD. HPOD Conference, Harvard Law School, 20 February 2010.

5 Richardson G. Mental disabilities and the law: from substitute to supported decision-making? *Curr Legal Prob* 2012; **65**: 333–54.

6 Zinkler M. Germany without coercive treatment in psychiatry—a 15 month real world experience. *Laws* 2016; **5**: 15.

7 Albus M, Brieger P, Schreiber W. [Compulsory treatment with psychotropic drugs: effects of the 2013 legislation amendment on treatment in psychiatric hospitals in Bavaria]. *Recht Psychiatrie* 2015; **33**: 193–7.

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doi: 10.1192/bjp.211.2.118a

Authors' reply: Zinkler & De Sabbata argue that we did not go far enough when calling for the immediate cessation of the use of CTOs in people who competently refuse psychiatric treatment. They do so on the basis of the controversial interpretation of the Convention for the Rights of Persons with Disabilities (CRPD), adopted by the UN Committee charged with reviewing its implementation. This interpretation argues that the text of the CRPD demands that decisions made by individuals who are unable to understand pertinent information or use and weigh it despite maximal support should nonetheless be regarded as valid. Under this bizarre regime, a man with mania who walks naked through the high street to save the world should not have his modesty preserved, and a woman who kills her baby believing it to be the devil should be prosecuted with the full force of the law.

The CRPD was created by international consensus. Like all such documents its language is often byzantine and opaque, but the Committee's reading of the meaning of the text is extremely strained. It has been roundly criticised and largely ignored.[1–3] Part of the Committee's argument, repeated by Zinkler & De Sabbatta, is that we cannot presume to be able to accurately assess the inner workings of the human mind, but this blithely ignores that this is exactly what psychiatry, the law, and indeed all humans do all the time. Reports of hallucinations are equated to an experience of a person's inner world. Deliberate affirmations made contrary to facts are adjudged to be lies. And heartfelt declarations of abiding love are accepted to form the basis of our most important relationships.

When individuals competently refuse treatment, we must respect their decision. However, when people make perilous decisions because they cannot understand or use the relevant information, we should first do all we can to assist that understanding; if that proves futile, a proxy decision-maker will be required, acting as far as possible so as to respect their rights, will and preferences.

1 Callaghan S, Ryan CJ. An evolving revolution: evaluating Australia's compliance with the Convention on the Rights of Persons with Disabilities in mental health law. *UNSW Law J* 2016; **39**: 596–624.