

Analysis

Insight and psychosis: the next 30 years

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Academic interest in the concept of insight in psychosis has increased markedly over the past 30 years, prompting this selective appraisal of the current state of the art. Considerable progress has been made in terms of measurement and confirming a number of clinical associations. More recently, the relationship between insight and involuntary treatment has been scrutinised more closely alongside the link between decision-making capacity and insight. Advances in the clinical and cognitive neurosciences have influenced conceptual development, particularly the field of ‘metacognition’. New therapies, including those that are psychologically and neurophysiologically based, are being tested as ways to enhance insight.

Declaration of interest

None.

Keywords

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The study of insight in relation to psychosis began in earnest 30 years ago.¹ An anonymous Lancet editorialist commented at the time that such study was ‘academically nourishing but clinically sterile’.² Now seems a good time to take stock and look forward to the next 30 years. To date there has been much useful conceptual analysis, the production and widespread use of reliable and valid rating instruments and a set of replicable clinical correlations to add to the psychiatric canon. These include correlations between insight and psychopathology, IQ (poorer insight, worse psychopathology and lower IQ) and mood (lower mood and better insight).³ Another obvious and clinically relevant relationship is that between insight and treatment adherence and hence outcome. There is a suggestion that good insight confers a more favourable prognosis over and above adherence, although this would be hard to establish through observational studies alone.⁴

Insight and capacity

The relation between insight and adherence, or rather poor insight and coercive treatment, is naturally where critics of the insight concept converge. ‘Insight’, they say, is merely agreeing with the doctor. A person’s refusal to accept a doctor’s considered diagnosis of, say, cancer would be deemed extraordinary, yet in the case of schizophrenia this is not so. Illness categories in psychiatry remain contested and lack objective criteria, and the psychiatrist’s authority is not a given. But where a patient’s self-appraisal as not being unwell or needing help is at odds with their peers (including those with lived experience of the condition) and family, might this not be regarded as a lack of insight even without the power imbalance dimension? There is a strong empirical as well as common sense connection between insight and decision-making capacity,⁵ which requires further ethical and practical scrutiny. However, recent qualitative work in medicolegal contexts such as mental health tribunals, finds that ‘lack of insight’ is often used as a proxy for lack of capacity but without corresponding justification, and may serve to undermine the individual’s testimony.⁶

The interface between insight and capacity to decide upon treatment is seen most vividly in the ability to ‘use and weigh’ information, a key criterion for mental capacity used in the Mental Capacity Act (2005) definition. It is hard to see how the benefits and harms of a proposed treatment can be weighed in the balance if you do not believe you are ill in the first place. But rather than clinicians simply pronouncing that insight is lacking, it would be more informative to trace the arguments the patient proffers (if any).

For example, if the patient says they are the victim of a conspiracy to rob them of their freedom and force them to take mind-altering drugs for no reason whatsoever, then the benefits or otherwise of treatment are not being weighed in the balance. Alternatively, if the patient describes realistic plans of how they will survive outside of hospital and that they have previously done so without medication despite their clinician’s argument that this has led to relapse, then the statutory authority at least has the basis of a meaningful discussion, which they would not have if they had been told merely that the patient’s insight is ‘partial’.

Multidisciplinary enquiry attempting to tackle these and related dilemmas is ongoing thanks to the Wellcome funded Mental Health and Justice programme (mhj.org.uk).

Metacognition

Metacognition is a relatively new area of psychology examining people’s ability to reflect upon their own cognition and appears to be related to insight as used in psychiatry. At its most precise it is the degree of confidence a person has on a specific judgement, such as a perceptual decision (did the dots move left or right?) or a mnemonic task (is this word old or new?). The extent to which such confidence is merited is ‘metacognitive efficiency’. This takes into account performance level and seems to have a specific cerebral localisation.^{7,8} But is this task-by-task metacognition, whose time course is measured in milliseconds to seconds, related to more day-to-day self-judgements (did I choose the right route home?) carried out over seconds or minutes, or to questions such as did I choose the right career? The work of a lifetime perhaps – quite possibly.

The cognitive neuroscience of metacognition is beginning to make important contributions to psychopathology.^{9,10} Lack of metacognitive awareness (not reflecting on whether a decision is correct) on even abstract perceptual tasks may link with impulsivity. Low confidence in decisions globally (‘I’m bound to be wrong whatever I decide’) underpins much thinking in depression, whereas excessive metacognition can inhibit decision making, as in obsessive compulsive disorder. The lack of ability to change one’s mind in the light of new evidence is a core feature of delusions. Paradigms that build on advances in metacognitive research and make use of computational modelling also promise much in this regard.¹¹ Models of decision making under conditions of uncertainty are being constructed and tested where personal values are incorporated along with such variables as the strength of current beliefs, contradictory

information and likely benefits of any decision (immediate versus delayed).

Insight and metacognition

For insight in psychiatry, the metacognitive challenge posed is to reflect on one's own mental and interpersonal functioning. It involves an attempt to see one's thinking and behaviour 'objectively', as if through another person's eyes, and then comparing it to some representation of mental health. There is just one fundamental question asked in relation to clinical insight (after Aubrey Lewis): do I have an illness and is the illness mental? It includes the moment-to-moment evaluation of mental activity (e.g. was someone speaking to me or was it my imagination?) as well as more enduring 'semantic' evaluations, such as whether my beliefs are true and shared by others. Note that although that representation of mental health will be the amalgam of received opinion and experience, there is no judging doctor, as it were, in sight.

Cognitive insight is a new construct put forward by Beck *et al*¹² and refers to a cognitive style or propensity to question one's ideas, beliefs and behaviour. One advantage it affords research is that it enables insight to be studied in healthy individuals without confounders such as stigma and the effects of treatment, and thus to be linked to normal psychological processes where there is no illness into which one might or might not have insight. An early area of interest is the relationship between cognitive and clinical insight. Thanks to meta-analyses,¹³ we can say that there is a surprisingly weak correlation between the two. However, cognitive insight may have some predictive validity clinically; for example, better cognitive insight leading to fewer symptoms after 1 and 4 years following a first episode of psychosis.¹⁴ We still do not know if poor cognitive insight in a vulnerable individual may be a risk factor for later psychosis *per se*, or whether, in the event of them developing a psychosis, they would have good or poor clinical insight.

A relationship between mood and clinical (and cognitive) insight is now well established. It applies to most conditions in which it has been studied: the lower the mood the better the insight,¹⁵ as noted above. Such is the closeness of the association that it is reasonable to suggest that they are two sides of the same coin and spring from the human condition. The notion is that removal of rose-tinted spectacles reveals the world as it truly is: depressive realism. Although this links neatly with metacognition and confidence, it runs counter to received clinical folklore that the gaining of insight, particularly after a psychotic episode, induces depression and at worst, may even lead to suicide. Empirical justification for unidirectional causality is lacking,¹⁶ perhaps because of the messy complicating factors that often precede suicide in people with psychosis in the real world: longstanding depression, rejection of treatment and disengagement with social and professional support. These factors attest more to the loss of insight than its gain, notwithstanding the pain attached to the latter. Nevertheless, any psychotherapeutic attempt to restore insight (see below) should be in the form of acknowledging difficulties as a first step in gaining mastery over them, encouraging openness to taking up an effective treatment for those symptoms that cause distress at least as a start, and not at all the forced acceptance of some abstract illness model.

Treatment

Metacognitive therapies

Talking therapies designed to improve metacognition (metacognitive therapy and metacognitive training) across a range of mental disorders have been developed and tested in small clinical trials. A systematic review¹⁷ found 19 controlled studies in schizophrenia, of which 15

were randomised. The results approached significance when compared with standard or other psychological treatments, with a pooled standard mean difference in positive symptoms scores estimated to be -0.31 (95% CIs -0.50 to -0.12). Two small but intensive trials of metacognitive reflection and insight therapy versus treatment as usual to improve insight and self-reflection in first-episode psychosis¹⁸ and schizophrenia¹⁹ showed encouraging but modest benefits. A larger ($n = 121$), recent, multi-centre, group-based psychosocial intervention ('REFLEX') with an active control condition showed improvements in insight in both conditions, although marginally greater in the main treatment arm.²⁰ To some extent the success of all these therapies depends on the closeness of the link between metacognition and insight that, as discussed, is itself a topic of ongoing enquiry.

Medication

Given that worse psychopathology goes with worse insight, any effective treatment should improve insight. However there are both state and trait elements to insight.²¹ A systematic review found rather sporadic evidence that there were insight-enhancing therapies.²² A large, open, randomised controlled trial, the European First-Episode Schizophrenia Trial, compared haloperidol, amisulpride, olanzapine, quetiapine and ziprasidone on insight in first-episode schizophrenia and related disorders. There was a highly significant 56% improvement on the insight and judgement item from the Positive and Negative Symptoms of Schizophrenia Scale at 12 months, in line with the level of symptomatic improvement across the board. All the antipsychotic drugs were similar except for quetiapine, which tended to lag behind the others.²³

Neuroscience

Some early, exploratory applications of neuroscientific methods to study insight showed changes within groups of patients with schizophrenia in the direction of more brain volume loss in those rated as having lower insight scores, but these may have been partially resulting from confounders to do with general illness severity. More refined imaging techniques (e.g. examining cortical thickness²⁴) have not come up with a consistent candidate for an 'insight centre' in the brain and nor are they likely to, given the complexity and likely distributed nature of the construct. More hypothesis-driven work for example that insight deficits might be linked to the right cerebral hemisphere analogous to anosognosia continues (see Morgan *et al*²⁵ for review). New technologies have revealed subtle white matter and connectivity problems.^{26,27} However, given the fluctuating nature of insight, the promise of functional imaging to shed light on the process has always been greater than structural, and more so since a normative functional system underlying self-appraisal and involving a cortical midline network has been established.²⁸ This system may be operating suboptimally²⁹⁻³¹ in patients with psychosis and this could relate to illness appraisal. Similarly, the default mode network (involving an overlapping area of medial frontal structures activated during internally directed thinking) is a region of interest to insight researchers.³²

Given the effectiveness of dopamine-blocking drugs to improve psychotic symptoms and insight noted above, it is natural to explore the relationship between D2 receptor blockade and changes in insight. This was indirectly studied in 16 patients with schizophrenia, using a pharmacological estimation of dopamine blockade based on plasma level concentrations.³³ An association was found at baseline but not after gradual medication dose reduction, perhaps because it was swamped by other illness-related measures. So far, neurochemical imaging techniques have yet to be deployed systematically to study insight.

A genetic contribution has also been explored by analysing insight in participants in the Clinical Antipsychotics Trials of Intervention Effectiveness trial. Using the psychosis risk score derived from genome-wide association studies carried out by the Psychiatric Genomics Consortium, the authors found that patients with the highest psychosis risk score had 5.9 times increased risk for poor insight compared with patients with the lowest scores, although this only explained 3.2% of the variance in poor insight.³⁴

Neuromodulation

An emerging area of therapeutic research is neuromodulation. Transcranial direct current stimulation (tDCS) is a simple, safe and non-invasive method for selectively modulating cortical excitability. Of interest, anodal tDCS over the dorso-lateral prefrontal cortex has been reported to significantly increase conscious awareness of errors on attention tasks in the elderly.³⁵ Crucially, a pilot study showed that tDCS to same region increased insight in patients with schizophrenia,³⁶ although unfortunately the study did not utilise a sham control condition.

In conclusion, the study of insight has proved to be both academically stimulating and clinically fertile. As a biopsychosocial construct *par excellence*, the topic has the capacity to bring in new concepts and knowledge from across the spectrum of research relevant to mental disorders. I am personally looking forward to what new insights the next 30 years will bring.

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References

- David AS. Insight and psychosis. *Br J Psychiatry* 1990; **156**: 798–808.
- Anonymous. Real insight (editorial). *Lancet* 1990; **336**: 408.
- Amador XF, David AS eds. *Insight and Psychosis: Awareness of Illness in Schizophrenia and Related Disorders* (2nd edn). Oxford University Press, 2004.
- Lincoln TM, Lüllmann E, Rief W. Correlates and long-term consequences of poor insight in patients with schizophrenia: a systematic review. *Schizophr Bull* 2007; **33**: 1324–42.
- Owen GS, Richardson G, David AS, Szmulker G, Hayward P, Hotopf M. Mental capacity, diagnosis, and insight in psychiatric inpatients: a cross sectional study. *Psychol Med* 2009; **39**: 1389–98.
- Diesfeld K. Insight: unpacking the concept in mental health law. *Psychiatry Psychol Law* 2004; **10**(1): 63–70.
- Fleming SM, Weil RS, Nagy Z, Dolan RJ, Rees G. Relating introspective accuracy to individual differences in brain structure. *Science* 2010; **329**: 1541–3.
- Fleming SM, Ryu J, Golfinos JG, Blackmon KE. Domain-specific impairment in metacognitive accuracy following anterior prefrontal lesions. *Brain* 2104; **137**: 2811–22.
- Rouault M, Seowa T, Gillan CM, Fleming SM. Psychiatric symptom dimensions are associated with dissociable shifts in metacognition but not task performance. *Biol Psychiatry* 2018; **84**: 443–51.
- David AS, Bedford N, Wiffen B, Gillean J. Failures of metacognition and lack of insight in neuropsychiatric disorders. *Phil Trans R Soc B* 2012; **267**: 1379–90.
- van der Plas E, David AS, Fleming SM. Advice-taking as a bridge between decision neuroscience and mental capacity. *Int J Law Psychiat*, in press.
- Beck AT, Baruch E, Balter JM, Steer RA, Warman DM. A new instrument for measuring insight: the Beck Cognitive Insight Scale. *Schizophr Res* 2004; **68**: 319–29.
- Van Camp LSC, Sabbe BGC, Oldenburg JFE. Cognitive insight: a systematic review. *Clin Psychol Rev* 2017; **55**: 12–24.
- O'Connor JA, Ellett L, Ajnakina O, Schoeler T, Kolliakou A, Trotta A, et al. Can cognitive insight predict symptom remission in a first episode psychosis cohort? *BMC Psychiatry* 2017; **17**: 54.
- Murri MB, Respino M, Innamorati M, Cervetti A, Calcagno P, Pompili M, et al. Is good insight associated with depression among patients with schizophrenia? Systematic review and meta-analysis. *Schizophr Res* 2015; **162**: 234–47.
- Lopez-Morinigo JD, Di Forti M, Ajnakina O. Insight and risk of suicidal behaviour in two first-episode psychosis cohorts: effects of previous suicide attempts and depression. *Schizophr Res* 2019; **204**: 80–9.
- Philipp R, Kriston L, Lanió J, Kühne F, Härter M, Moritz S, Meistert R. Effectiveness of metacognitive interventions for mental disorders in adults—A systematic review and meta-analysis (METACOG). *Clin Psychol Psychother* 2019; **26**: 227–40.
- Vohs JL, Leonhardt BL, James AV, Francis MM, Breier A, Mehdiyou N, et al. Metacognitive reflection and insight therapy for early psychosis: a preliminary study of a novel integrative psychotherapy. *Schizophr Res* 2018; **195**: 428–33.
- De Jong S, van Donkersgoed R, Timmerman M, Aan het Rot M, Wunderink L, Arends J, et al. Metacognitive reflection and insight therapy (MERIT) for patients with schizophrenia. *Psychol Med* 2019; **49**: 303–13.
- Pijnenborg GHM, Vos AE, Timmerman ME, van der Gaag M, Sportel BE, Arends J, et al. Social cognitive group treatment for impaired insight in psychosis: a multicenter randomized controlled trial. *Schizophr Res* 2019; **206**: 362–9.
- Wiffen BDR, Rabinowitz J, Lex A, David AS. Correlates, change and 'state or trait' properties of insight in schizophrenia. *Schizophr Res* 2010; **122**: 94–103.
- Pijnenborg GHM, van Donkersgoed RJM, David AS, Aleman A. Changes in insight during treatment for psychotic disorders: a meta-analysis. *Schizophr Res* 2013; **144**: 109–17.
- Pijnenborg GH, Timmerman ME, Derks EM, Fleischhacker WW, Kahn RS, Aleman A. Different effects of antipsychotic drugs on insight in first episode schizophrenia: data from the European First-Episode Schizophrenia Trial (EUFEST). *Eur Neuropsychopharmacol* 2015; **25**: 808–16.
- Béland S, Makowski C, Konszowicz S, Buchy L, Chakravarty MM, Lepage M. Clarifying associations between cortical thickness, subcortical structures, and a comprehensive assessment of clinical insight in enduring schizophrenia. *Schizophr Res* 2019; **204**: 245–52.
- Morgan KD, Dazzan P, Morgan C, Lappin J, Hutchinson G, Suckling J, et al. Insight, grey matter and cognitive function in first-onset psychosis. *Br J Psychiatry* 2010; **197**: 141–8.
- Asmal L, du Plessis S, Vink M, Fouche J-P, Chiliza B, Emsley R. Insight and white matter fractional anisotropy in first-episode schizophrenia. *Schizophr Res* 2017; **183**: 88–94.
- Curčić-Blake B, van der Meer L, Pijnenborg GH, David AS, Aleman A. Insight and psychosis: functional and anatomical brain connectivity and self-reflection in schizophrenia. *Hum Brain Mapp* 2015; **36**: 4859–68.
- van der Meer L, Costafreda SC, Aleman A, David AS. Self-reflection and the brain: a theoretical review and meta-analysis of neuroimaging studies with implications for schizophrenia. *Neurosci Biobehav Rev* 2010; **34**: 935–46.
- Holt DJ, Cassidy BS, Andrews-Hanna JR, Lee SM, Coombs G, Goff DC, et al. An anterior-to-posterior shift in midline cortical activity in schizophrenia during self-reflection. *Biol Psychiat* 2011; **69**: 415–23.
- Bedford N, Surguladze S, Giampietro V, Brammer MJ, David AS. Self-evaluation in schizophrenia: an fMRI study with implications for the understanding of insight. *BMC Psychiatry*; **21012**(12): 106.
- van der Meer L, de Vos AE, Stiekema APM, Pijnenborg GHM, van Tol M-J, Nolen WA, et al. Insight in schizophrenia: involvement of self-reflection networks? *Schizophr Bull* 2013; **39**: 1288–95.
- Gerretsen P, Menon M, Mamo DC, Fervaha G, Remington G, Pollock BG, et al. Impaired insight into illness and cognitive insight in schizophrenia spectrum disorders: resting state functional connectivity. *Schizophr Res* 2014; **160**: 43–50.
- Gerretsen P, Takeuchi H, Ozzoude M, Graff-Guerrero A, Uchida H. Insight into illness and its relationship to illness severity, cognition and estimated antipsychotic dopamine receptor occupancy in schizophrenia: an antipsychotic dose reduction study. *Psychiatry Res* 2017; **251**: 20–5.
- Xavier RM, Vorderstrasse A, Keefe RSE, Dungan JR. Genetic correlates of insight in schizophrenia. *Schizophr Res* 2108; **195**: 290–7.
- Harty S, Robertson IH, Miniussi C, Sheehy OC, Devine CA, McCreery S, et al. Transcranial direct current stimulation over right dorsolateral prefrontal cortex enhances error awareness in older age. *J Neurosci* 2010; **34**: 3646–52.
- Bose A, Shivakumar V, Narayanaswamy JC, Nawani H, Subramaniam A, Agarwal SM, et al. Insight facilitation with add-on tDCS in schizophrenia. *Schizophr Res* 2014; **156**: 63–5.