In conclusion, we acknowledge the limitations of research in this complex subgroup with chronic heroin addiction and also the evidence of benefit from oral methadone in the broader population of people addicted to the drug. However, we consider the important findings reported in the paper are that, for this subgroup doing persistently badly on oral methadone treatment, it is important for clinicians to work with their patients to explore alternative options, such as injectable treatments, which may achieve health benefits not being achieved in the expected manner with the orthodox first-line treatment, and which may achieve this health benefit in a more cost-effective manner. Such personalisation of treatment plans is important but is currently being hindered by the cost implications of providing injectable alternatives and a previous lack of evidence of cost-effectiveness.

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Psychosis as a failure of reality testing

Garety & Freeman present a timely review on the nature of delusional experience.[1] Their conclusion regarding the need to focus on individual features of psychosis seems apt. The presented overview of cognitive and affective mechanisms influencing delusion development seems, however, to overlook an essential component of delusional experience; that psychotic symptoms, including delusions, at their heart represent a failure of reality testing.

The description of jumping to conclusions, together with the probabilistic reasoning task methodology, appear to rely on a logical chain of thought progression and conclusion – what Campbell has referred to as an empiricist understanding.[2] This approach, however, does not take into account the nature of conclusions reached in delusional belief. Conclusions reached on seeing two, or fewer, coloured counters seem quite distinct from classic examples of delusional perception: 'I saw the traffic lights turn green and realised that the world would end'. Campbell's alternative rationalist approach presents the person with delusions as having experienced a complete rearrangement of their framework propositions, or underlying background world beliefs. Such a fundamental shift in a world-view model can go some way to explaining the fantastical nature of conclusions reached, or the failure of reality testing present in psychosis.

Campbell's arguments have not gone unchallenged.[3] However, what they do highlight is a need for careful consideration as to the manner in which delusional beliefs are formed. Garety & Freeman describe the psychoanalytic thinking in relation to defence mechanisms in the development of persecutory delusional belief. Psychotic defence concepts, wherein the individual denies or distorts reality to defend against trauma, provide one possible lens through which psychotic experiences can be viewed.[4,5]

Garety & Freeman's conclusion relating to the infancy of research into the nature of delusion, and its having been overshadowed by focus on the larger concept of schizophrenia, highlights the need for further research. Future research will need to provide some account for the distortion of reality that seems central to the experience of psychosis.

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Authors' reply: We differ in our approach from that taken by Shepherd, in that we are advocating an empirical approach which posits hypotheses that can be and are tested. Our review of over 200 studies demonstrates how much has been learned by testing hypotheses, amassing evidence and replicating findings.[1] Thus there is now strong and consistent evidence that delusions are associated with biases in reasoning, such as are assessed by experimental tasks and reliable interviews. These findings are important and provide an explanation of the failure to take on board all the evidence – or a failure of reality testing, as Shepherd puts it. We now therefore have secure knowledge of specific reasoning processes which may be targeted in treatment.[2]

We do not agree that world beliefs are fundamentally rearranged in people with delusions. Rather, the person's delusions can be shown to build on the pre-existing thoughts about self and world, and are actually typically preceded by periods of anxious worry.[3] Traditional views of sudden dramatic changes are not in general supported by the evidence. Although we show that there is clear evidence of the importance of emotional processes – and in some cases this can be linked to childhood trauma – we do not conclude that the delusion represents a defence. The psychoanalytic defence accounts are not supported by the evidence. Rather, anxiety and depression – and negative views of self and others – are risk factors for and commonly expressed by patients with delusions.[4] We consider that these research findings render delusions explicable, and may have implications for the way all clinicians engage with people with delusions.

We advocate that there is now enough certainty in the evidence base for concerted efforts to translate them into targeted treatments for delusions. It is through further trials, drawing on the evidence base which identifies mechanisms underpinning

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delusions, and with change in delusions as the primary outcome, that we will make progress towards alleviating the distress at the heart of delusional experience.

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Psychotherapy for severe somatoform disorder: problems with missing studies

The recent review by Koelen and colleagues[1] of psychotherapy for severe somatoform disorder is welcome in highlighting the need for better evidence in this area. It has unfortunately omitted a number of relevant studies, especially relating to conversion disorder. One major reason for this is that the index date on which studies were searched for, March 2010, was nearly 4 years prior to publication. It is a pity that the authors did not update their analysis at the time of their last revision in June 2013, as they would, at this time, have been able to include a number of relevant studies, including a randomised trial of cognitive–behavioural therapy for non-epileptic seizures ($n = 66$)[2] and a randomised controlled trial of guided self-help for functional neurological symptoms (i.e. conversion disorder) ($n = 127$).[3] These two studies were published before one of the studies included in the analysis, the study by Sattel *et al* published in 2012.[4]

There are further studies of psychotherapy in conversion disorder which were published before March 2010: a study of psychotherapy for non-epileptic seizures ($n = 20$);[5] a study of psychotherapy for conversion disorder ($n = 91$);[6] a study of psychotherapy for psychogenic movement disorders ($n = 10$);[7] and a large controlled and negative trial of psychotherapy for patients with somatoform disorders in a general hospital ($n = 91$).[8] The authors may have excluded them but they did not present a list of the 64 excluded studies as a supplemental file.

Other types of study that could arguably have been included using the authors' own criteria are some randomised trials in functional dysphonia, a form of conversion disorder treated in secondary care with voice therapy and sometimes psychotherapy.[9] There are also treatment studies of children with conversion disorder which have not been included and would not have been excluded by the authors' inclusion criteria.[10,11]

Further studies in conversion disorder have followed in the past 2 years which describe outcomes from multidisciplinary treatment including psychotherapy.[12–15] Journal articles cannot always be up to date, but the number of omissions here make this meta-analysis immediately in need of updating.

Two included studies were of hypnosis for motor conversion disorder.[16,17] Hypnosis is arguably a form of psychotherapy, but also arguably not. In addition, the inclusion of studies which randomised bioenergetic exercise against gym exercise in a setting where all patients received psychotherapy[18] and a study of in-patient multidisciplinary rehabilitation in chronic pain ($n = 298$) graded as 'extremely poor'[19] and then included in a 'treatment as usual arm' is debatable.

The authors could have done more to highlight one of the obvious drawbacks of their review. There is a paradox in reporting on treatment for patients who had been defined as having somatoform disorder (often needing only to have three symptoms e.g. pain, fatigue, dizziness or irritable bowel syndrome) while ignoring studies on psychotherapy for individual functional somatic disorders such as irritable bowel syndrome and fibromyalgia. Most patients with functional somatic disorder also have other symptoms such as fatigue and pain,[20] and probably would, for example, meet criteria for multisomatoform disorder. It is at times highly arbitrary whether authors decide, for example, to use the term somatoform pain disorder or chronic pain disorder. A broader overview of studies in all these fields or at least greater acknowledgement of the overlap would have been helpful for the reader.

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