In Review

Cognitive and Meta-cognitive Dimensions of Psychoses

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This paper outlines cognitive approaches to understanding and treating positive psychotic symptoms, such as hallucinations, delusions, and dissociations. Recent cognitive accounts of psychosis are reviewed along with the claim that it is not the symptoms themselves but cognitive and meta-cognitive appraisals (attributions and beliefs) about the significance of the symptoms that cause distress and dysfunction. Psychotic symptoms do lie on a continuum with normal experience. Cognitive appraisal dimensions may interact with reasoning styles such as inferential confusion, cognitive slippage, fantasy proneness, and perceptual immersion (styles also normally distributed in the population) and together persuade the person with psychosis to live in fictional narratives as if they were real. Recent clinical studies suggest that addressing beliefs about symptoms modifying inferential styles and normalizing experiences may help symptom management.


Highlights

- Psychoeducation techniques normalizing anomalous experiences in psychosis could help relieve symptom distress.
- Cognitive therapy may usefully target beliefs and meta-worries in response to anomalous experiences rather than the experiences themselves.
- Hallucinations and delusions may not result from perceptual distortion but rather from cognitive styles, which encourage cognitive, affective, and sensory immersion in fictional narratives.

Key Words: psychosis, hallucinations, delusions, cognitive models, beliefs, cognitive styles

The cognitive approach distinguishes between the normality of psychotic experiences and the later appraisal and (sub)cultural context making sense of the experience and emotional reaction to the thoughts. A key claim here is that the symptoms of a psychotic experience, for example, voice hearing, delusions, persecutory ideas, and dissociations, are all phenomena that have been experienced at one time by most people without psychosis. What makes the symptoms more persistent in the case of psychosis is a peculiar combination of emotional stress, feelings of vulnerability, threat appraisals, cognitive styles, and cultural and personal beliefs that together create distress and dysfunction about anomalous experiences.

Thus cognitive models represent a sharp shift away from a medical model focusing on symptoms toward viewing the psychotic experiences as a product of an interaction of several psychological process dimensions. Further, most of these process dimensions, which include external attribution, threat appraisal, resistance to thoughts coupled with low self-esteem, and fluctuations in affective state, if taken separately, constitute also processes present in different degrees in nonclinical populations.

An early model by Maher suggested that the formation of delusions was essentially a search for meaning. The person confronted with experiences or sensations beyond their usual range may impose strange meanings on phenomena for lack of better information or reference point. The delusional state does seem to contain anomalous cognitions, moods, and unusual feelings.

Somebody experiencing a sexual urge for the first time may, in a strict religious context, be ill-prepared to accept this urge and drawing on, say, a biblical metaphor, consider literally...
that the thought has been injected into them by an evildoer, instead of treating the sensation as a maturational event. Someone who understands that stress narrows attention may well let go that they forgot an important errand when stressed. For someone who does not or cannot accept such forgetfulness, even under stress, some other unusual cause must be sought and the memory lapse means they are mad or afflicted or cursed.

**Cognitive Models**

In one of the most elaborate cognitive models of psychosis proposed so far by Freeman and colleagues, psychotic events are composed of 3 major ingredients: internal and external events, pre-existing beliefs, and cognitive biases. Therefore, for example, a high degree of internal arousal coupled with a critical stress impinging significantly on a person may lead them to question previous conceptions and taken-for-granted boundaries between self and the world. This questioning will call into play existing beliefs, and in particular is likely to generate threat beliefs. The threat beliefs may relate to long-held core beliefs about the vulnerability of the self. This belief may be concretized by a tendency to jump to conclusions, to blame others, and to misread cues and intentions through a misapplied theory of mind.

The role of low self-esteem as a dimension seems crucial to the development of delusions and hallucinations. One social dimension theory, proposed by Bentall and Kaney, is that delusions are a defensive reaction to a perceived discrepancy between actual and real self-image. The person with persecutory delusions is unable to accept that they are not exactly as they should be and hence blames others for their problems and attributes causes to external events; therefore, resembling the general population's tendency of taking the credit for success but blaming others for failure. Again, there may be strong subcultural beliefs about goodness or the ideal self dictating these interpretations.

In fact, several cognitive dimensions of the self seem relevant to delusion development. Freeman and colleagues, in a study of a large sample (n = 327) of nonclinical people, found that paranoia was best accounted for by the presence of separation anxiety, depression, fragile inner self, discomfort with ambiguity, and self-focus. Having fears and insecurities about relationships, feeling depressed, stressed, and self-focused, and jumping to conclusions under ambiguous conditions seem all contributing factors.

In a further virtual reality experiment, the same authors found that anxiety, timidity, and hallucinatory experience, and degree of presence in virtual environments predicted greater paranoid reactions to neutral computer avatars. The latter 2 traits are dimensional and form a continuum with normality.

In cognitive models, once the delusional system develops, it is also reinforced principally by normal processes such as confirmation bias. Using a probability task, Fear and Healy found that participants with obsessions needed more information before making a decision on probability than control subjects, compared with participants with delusions who jumped quicker to conclusions. Other researchers have suggested that whereas people suffering from delusions show a confirmation bias (tendency to select evidence confirming a belief), obsessional participants may show disconfirmation bias (the tendency to selectively seek evidence, disconfirming or doubting initial propositions). It is normal to confirm one's beliefs—at least initially. Confirmatory bias makes sense to ensure a continuity of purpose. A series of classic experiments by Wason and Johnson-Laird showed that fewer than 10% of people spontaneously seek evidence to disconfirm a hypothesis. However, most will seek evidence when prompted, while confirmation bias in delusions becomes exclusionary and actively negates incoming information.

**Normal Dimensions of Psychotic Symptoms**

There is now very strong evidence that hallucinatory experiences lay on a continuum, at least up to a point. Serper and colleagues report a continuous subclinical and clinical factor, and suggest differences between clinical and subclinical groups may be the existence of a low critical threshold and differences in the way patients express and attribute anomalous perceptual experiences. It seems, then, not abnormal to hear voices, see visions, especially, as Maher noted, if the phenomena occurs infrequently.

Hallucinatory-like behaviour can be learnt and can be conditioned to occur in people without psychosis. Delusions of alien control of body parts can be elicited through induced misattribution in nonclinical groups. Many people report psychotic-like interpretations, particularly under ambiguous or anomalous discontinuous conditions. Over 60% of the population have experienced at least mild episodes of dissociation (derealization, depersonalization, and desomatization), which is essentially a form of dysfunctional self-awareness. Depersonalization may be associated with fantasy proneness and depression.

Other factor analytic studies have suggested that hallucinations are not accounted for by perceptual error as visions are spontaneous and the degree of immersion and sensory

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**Abbreviations used in this article**

<table>
<thead>
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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>CBT</td>
<td>cognitive-behavioural therapy</td>
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<td>OVI</td>
<td>overvalued ideation</td>
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intensity are crucial to the experience. Degree of presence in a virtual or real environment is normally distributed. Studies of the phenomenology of hallucinations show they are usually unfamiliar, never seen before, often considered supernatural, and also normal physical constraints on movement duration and appearance. The most striking aspects are that unusual affect is commonly associated with onset of hallucinations along with an importance accorded to the vision as an external message for action.

Jones and colleagues found that distress is not related to the content of voices but rather to beliefs about origin, identity, and purpose. These authors found different attitudes to voices across a range of voice hearers, including voices as a positive spiritual attitude, as problem solving, and a negative attitude. The difference between people who do and do not consult psychiatric services may be the ability to frame voices in a healthy, positive way.

**Affective Dimensions**

The role of mood seems crucial also to triggering delusional states, chronic anxiety in the case of delusions, and depression for more bizarre hallucinations. This mood trigger may indicate a lower threshold for threat in people vulnerable to psychosis. Studies of prodromal states in schizophrenia have systematically shown that children who later developed psychosis show a higher prevalence of social anxiety and more dysthymia. The relation between persecutory beliefs and anxiety may be reciprocal. Although idiosyncratic beliefs may be associated with the content of the delusion, anxiety may orient the beliefs toward threat. However, in addition, higher levels of anxiety and beliefs about the pervasiveness of threat and the lack of safety may engender more isolating reclusive attributions. Further anxiety can be caused by appraisals about having delusions and the recognition of anomalous experience and the fear of going mad. In fact, 70% of people with psychotic experiences report a fear of going mad.

Further, depression may occur if people reflect on the belief that they have no control over their thoughts or their lives. Birchwood and colleagues have noted that persecutory voices are often seen as all-powerful and belittling to the person. People with psychosis frequently meet the criteria for other mood disorders and the role of appraisals may resemble anxiety disorder when it comes to meta-cognitions and worry.

**Interaction of Meta-cognitive, Cognitive, and Clinical States**

Patients with schizophrenia have high scores both on positive beliefs about worry and on negative beliefs about worrying thoughts involving lack of control, danger, punishment, and responsibility. Also, most suffer from meta-worry (they worry about worry). Morrison and Wells reported that psychotic patients who experience auditory hallucinations show higher levels of meta-cognitive dysfunctional beliefs. In particular, positive beliefs about paranoia (being suspicious protects me) may predict strength of belief, whereas negative beliefs (my thinking is out of control) predict distress. Overall, meta-cognitive beliefs of people with psychosis are very similar to those with anxiety disorders.

Therefore, psychotic experiences may be the result of negative attributions to initially nonpsychotic intrusive thoughts. The distress linked to psychotic symptoms may derive from appraisals and reactions to anomalous experience, such as: This means I am mad, I have failed, I am out of control, I am not who I should be. The beliefs and the distress are subsequently maintained by emotional and behavioural responses, including safety behaviours such as thought suppression and selective attention, similar to those maintaining distress in affective problems.

In an attempt to integrate clinical and cognitive aspects of the dimensional approach to psychosis, Guillem and colleagues looked at the correlation between positive and negative symptoms and measures of dysphoria and state and trait anxiety. Guillem and colleagues found a generally positive correlation between trait anxiety and positive symptoms, indicating that trait anxiety may be more likely a causal factor, and state anxiety a secondary effect of appraisal. Further, dysphoria correlated with a selected subsample of negative symptoms, particularly disordered relating. Guillem and colleagues conclude that these mood associations are best explained by interactions among cognitive biases, producing specific symptom expressions. Again, the implication is that underlying cognitive and affective process dimensions may account for symptom expression.

**(Sub)cultural Context**

However, according to Morrison, the key factor to developing psychotic distress is the (sub)cultural (not just personal) unacceptability of the intrusion. Cultural acceptability is recognized as an important issue in defining delusions. In some cultures, reference to bizarre controlling agencies is an acceptable justification for feelings and behaviours. In earlier Western civilizations, reference to malevolent dark forces in the mind would readily have been understood and accepted. Obviously, where there is a cultural consensus about a shared belief, psychosis as such is not diagnosable. Folie à deux [delusion shared between 2] or 3 or en masse may be present; however, even within sects subscribing to bizarre beliefs, there is usually a recognition of the person showing psychotic experiences as different.

On the theme of culturally normalizing psychotic experiences, there are now several organizations for voice hearers.

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These groups include psychotic and nonpsychotic voice hearers. As with other pathological experiences, many people have experienced hallucinations under particular circumstances: ambiguity, stress, and grief reactions.\(^{25}\) The mission of these groups is that by normalizing the experience, distress may be decreased and acceptability gained.

A particular innovative post-modern approach is to view verbal hallucinations—voices—as part of an unfinished dialogical conversation.\(^{26}\) Hence completing the conversation, deriving often from earlier authority figure(s), helps resolve the persecutory position and gives the person a sense of mastery over the omnipotent voice.\(^{27}\)

**The Continuum Between Overvalued Ideation and Delusions**

In a cognitive model, the distinction between psychotic and other experiences may come down to the beliefs the person holds about their thoughts and the force of these beliefs. Such beliefs may be measurable by several cognitive dimensions such as degree of conviction, systematization, and insight.\(^ {28}\) Those dimensions may vary independently but could form crucial points along a continuum between normal worry, overinvested ideas, and delusions. For example, degree of conviction varies not only across people with delusions but also across time and moods within people.\(^{29}\)

The presence of OVI is generally indicated by a strong intellectual investment in a fixed idea not shared by others, where the content of the idea is bizarre (that is, not arising from everyday life experiences). The treatment resistance of people with OVI to behavioural treatments was noted early on in clinical trials\(^ {30,31}\) and still poses problems.\(^{32}\) People with strong beliefs tend to lack insight known to contribute to negative treatment attitudes.\(^{33}\) OVI is generally located by psychiatric authors\(^ {44,45}\) on a dimension between obsessions and delusions and is distinguished from an obsessive preoccupation on the basis of bizarreness and strength of the conviction. Whereas in obsessions the person is likely to have some doubts about their obsessional belief, and have insight at certain times into its nonsensicality, in OVI there is more certainty about the belief, both in and out of the obsessive–compulsive situation.\(^ {36}\) The degree of certainty is firmly sustained in spite of input from others and defended and perpetuated in an ego-syntonic fashion, despite ego-dystonic repercussions. In OVI, similar to obsessions, the person experiences anxiety as a consequence of the obsessive belief and, therefore, performs rituals or other behaviours aimed at neutralization of the perceived aversive events. Recent instruments developed to measure OVI\(^ {37,38}\) implicitly assume that OVI beliefs take on similar dimensions to other fixed or delusional ideas, a notion supported by our own findings.

For example, in body dysmorphic disorder, where preoccupations most often involve imagined flaws of facial features (for example, the nose), hair, skin, body parts, and even overall body shape, it is recognized that a continuum exists from nondelusional to delusional preoccupations, and some people can move along this continuum, and the obsessional and delusional somatic type can overlap.

**Normalizing Fixed Beliefs**

We all have fixed beliefs that may be uniquely unfalsifiable. As Leeseer and O’Donohue\(^ {39}\) note, we all share foundational beliefs that cannot really be justified by argument or evidence but rather that we consider self-justifying and self-evident. More problematic is the extent to which these beliefs go against our subculture. Therefore, the issue defining abnormality may be rather the perception that our beliefs are subculturally anomalous. One argument against the normality of delusional experiences is that the content of delusions often does not relate directly to previous experience. However, the childhood family environment of the person with psychosis is often fertile ground for the development of mistrust and hostility. As Bentall and colleagues\(^ {40}\) have pointed out, persecutory convictions tend to develop in social circumstances that facilitate victimization and powerlessness, and exposure to intrusive life events. The common feature is the occurrence of aversive experiences instigated by others. A good example is immigration to a new and hostile culture, where shared delusions may develop amongst immigrants, often integrating subcultural beliefs with new cultural phenomena as a response to difficulty in coping.\(^ {41}\)

One therapeutic strategy springing from this point is the normalization of beliefs. Both Alford and Beck\(^ {42}\) and Kingdon and Turkington\(^ {43}\) point out that there is much subcultural hostility and criticism to psychotic content and so they suggest normalizing delusional beliefs by relating them to more culturally acceptable belief, to destigmatize the delusions and also show the link between delusional preoccupation and current stress. These authors report symptom improvement as a consequence of normalization.

**Cognitive Styles in Psychosis**

There are also personal and psychological factors contributing to development of vulnerability, such as chronic levels of anxiety, self-focus, and need for closure.\(^ {44}\) The role of anxiety or other idiosyncratic emotions in the delusional distress testifies strongly to the immersion of the person in the belief. Beliefs may be transmitted; however, where an idiosyncratic belief is arrived at punctually, it may draw on shared or at least accepted subcultural beliefs—but in a confusing manner. O’Connor et al\(^ {45}\) have referred to this process as inferential confusion and the inferential process is best revealed

when examining the narrative rather than resting just with isolated statements out of context. Inferential confusion is characteristic of obsessional and delusional disorder, as compared with other anxiety disorders and nonpsychiatric controls, and that its presence correlates highly with symptomatology.\cite{46} The Inferential Confusion Questionnaire is unidimensional and accounts for a significant amount of variance of symptomatology, independent of other cognitive domains.\cite{47} Decrease of symptoms following treatment is also strongly associated with decrease in inferential confusion.\cite{48,49} Many apparently ununderstandable (to use Jaspers’ term\cite{34}) delusional inferences make sense when the narrative behind them is exposed and where frequently the inference is justified by reference to popular, subcultural, or mythic fictions. For example, what can appear as a bizarre belief in isolation—People get inside my body and control my mind—could, in the context of the person’s wider narrative, be viewed as the confused product of numerous, more understandable myths and associations. One patient from our clinic justified her possession belief thus: “Well, I saw a film where a character is possessed, people can control other’s minds . . . I often wonder who I am . . . people say they wish to be in my shoes . . . it’s normal when you feel empty that you get filled up.” If this narrative is coupled with low self-esteem and a vulnerability to feeling used by others, the emergence of the possession belief is less mystifying and could even owe more to an overextended use of metaphor than to an irrational mind.

As Smythe\cite{50} has noted, fictions play a fundamental role in our theorizing about self and the world, and therefore provide tools both for theoretical understanding and for personal self-understanding and meaning-making. Smythe points out that fictions are used extensively in science and there can be explanatory, metaphorical, mythological, and narrative fictions. All of these involve an act of imaginative engagement in connection with an authorized prescription to imagine. In particular, the fictional statements are prescriptive, whereas factual statements aim to be descriptive. At the extreme end of mixing fictional and nonfictional contexts, the person may confuse as is with as if. Gooding and colleagues\cite{51} have also shown that the dimension of cognitive slippage, a mild form of thought disorder characterized by abnormal thought
associations and thought monitoring, is important in schizotypy and relates to magical ideation.

Differences between delusional, overvalued ideation, and nonclinical groups may lay not in their cognitive content but rather in the type and degree of perceived threat, the judgement or appraisal imposed on this threat belief (including subcultural beliefs), and the degree of control and coping over the threat beliefs, plus the predisposition toward certain cognitive styles, including inferential confusion (Figure 1).

Treatment Implications
The implication for cognitive treatment of delusions and other psychotic experiences is essentially to reduce the investment in the threat belief. One technique already mentioned involves the normalization of fixed beliefs and the normalization of the inductive narrative that may lead up to the delusional inference. Inferential confusion (confusing fictional and nonfictional narratives) can be modified through narrative re-storying. Psychoeducation is needed also in how appraisals, metacognitions, and attributions maintain distress. A series of cognitive strategies are recommended for eliminating cognitive biases. These include confronting the idea that confirmation bias is useful and self-protective. This approach involves exposing the incoherence and overinclusiveness of the confirmatory cycle, plus highlighting the fact that nothing the delusion predicts has ever happened in reality. Emotional distress and dysphoria can be relieved by exposing the link between the content of the delusion and stress, plus diminishing distress owing to appraisals of the consequences and the meta-cognitive beliefs about controllability, guilt, and cultural unacceptability of the experience.

Moving to the behaviour domain, reducing restrictions on life functioning caused by extensive safety behaviours may also lift mood. Rather than teaching specific coping strategies that may maintain focus on the psychotic experience, an important element is to encourage the person to reduce self-focus and distance themselves from the intrusive thought. A recent study found mindfulness training (teaching nonjudgemental attention to intrusive thoughts) was beneficial in a group of 10 people with psychosis, and improved subjective well-being and function. Mindfulness as a therapy has been shown beneficial in numerous other disorders such as depression and rumination.

Effectiveness of CBT
Several randomized controlled trials and meta-analyses have demonstrated the effectiveness of CBT in reducing stress and the likelihood of a transition to psychosis for people at risk. However, more recent studies suggest that CBT, when compared with more active interpersonal therapies such as befriending, shows more moderate effect sizes. These findings suggest other factors, such as self-esteem and therapeutic alliance, and other interpersonal approaches could profitably be integrated into CBT. Nonetheless, it remains to be established which components of CBT are effective. Despite strong recommendation from the National Institute for Health and Clinical Excellence (United Kingdom, 2002) that all patients should have access to CBT, there is currently a shortage of trained therapists and knowledge translation remains problematic.

Conclusion
Cognitive research suggests that most positive psychotic symptoms are not unique to psychosis and are experienced by other psychiatric and nonpsychiatric populations to different degrees. Meta-cognitions in psychosis resemble those in anxiety disorders. Beliefs about the experiences and, in particular, meta-beliefs and worry that may lead the person to find the experiences very disturbing and ego-dystonic, may account for much distress. These belief dimensions and subcultural factors interact with other vulnerable cognitive styles such as inferential confusion and ability to be immersed in a fictional narrative, leaving people less able to distinguish fact (as is) from metaphor (as if). Such elements of fantasy proneness, perceptual immersion, and inferential confusion are also dimensional and continuous with normal experience. Cognitive approaches would recommend an early focus on the normalization of experiences and psychoeducation in the nature of the psychotic phenomena and personal beliefs about them to destigmatize them and alleviate distress. Clinical studies have supported the efficacy of such cognitive interventions in reducing the intensity of affective and behavioural disturbances, and offer the possibility of producing a healthy functioning type of schizotypy.

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References
Résumé : Les dimensions cognitives et métacognitives de la psychose

Cet article présente les approches cognitives de la compréhension et du traitement des symptômes psychotiques positifs, comme les hallucinations, les délire et les dissociations. De récents comptes rendus cognitifs de la psychose ont été examinés, de même que l’allégation selon laquelle ce ne sont pas les symptômes par eux-mêmes mais les apprécations cognitives et métacognitives (attribution et croyances) de la signification des symptômes qui causent l’angoisse et la dysfonction. Les symptômes psychotiques se situent sur un continuum avec l’expérience normale. Les dimensions de l’appréciation cognitive peuvent interagir avec les styles de raisonnement comme la confusion inféréntielle, le dérapage cognitif, la propension aux fantasmes, et l’immersion perceptuelle (styles aussi répartis normalement dans la population), et peuvent ensemble persuader la personne souffrant de psychose de vivre dans des récits de fiction comme s’ils étaient réels. Les études cliniques récentes suggèrent que le fait d’aborder les croyances sur les symptômes qui modifient les styles inféréntiels et les expériences de normalisation peut contribuer à contrôler les symptômes.