

## Cognitive Behaviour Therapy of Schizophrenia *The amenability of delusions and hallucinations to reasoning*

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Cognitive behavioural techniques used in schizophrenia have generally been developed pragmatically in clinical settings. Despite the effectiveness of antipsychotic drugs in acute schizophrenia and in preventing relapse, many patients continue to have persistent positive and negative symptoms. Even drugs such as clozapine for resistant symptoms only appear effective in up to a third of those for whom they are indicated. Side-effects also present major problems. Poor compliance occurs in up to 75% with first-episode schizophrenia (Kissling, 1992) and up to 50% of patients discharged from hospital fail to take even 75% of medication prescribed (Buchanan, 1992).

Controlled studies have been unable to demonstrate the efficacy of psychodynamic psychotherapy in schizophrenia. However, the use of psychosocial approaches – family therapies (Lam, 1991), early intervention (Birchwood & Shepherd, 1992), coping strategies (Tarrrier *et al*, 1993) and training in illness self-management (Eckman *et al*, 1992) – have now been shown to reduce relapse rates and disability. Cognitive behavioural therapies based on the work of Beck (Beck *et al*, 1979) and Ellis (1962), supported by experimental evidence, are now being developed to supplement these.

### Evidence from cognitive psychology

#### Comparisons between normal and schizophrenic thinking processes

Dulit (1972) found that only about a third of adults and older children reach the most developed formal operational stage that Piaget described. Thus tasks involving assimilation of new evidence and reasoning abstractly are not mastered by a majority of the population, who continue at a concrete operational level rather than using logico-experimental reasoning. Confirmation of this comes from studies of how information is represented in the mind (Collins & Loftus, 1975) as the basis for research into problem solving and decision making. Normal thought processes do not conform to the rules of logic but make use of heuristics or models of probabilities to compensate for the brain's limited capacity to hold all the information required for decision-making at

any one time. Analysis of the rules used in decision-making has shown useful 'biases' and 'errors' which are introduced to simplify representation of reality and aid pragmatic decision making. Tissot & Bernard (1980) have described the application of Piaget's work in examining schizophrenic patients' reasoning methods and their integration with reality. This group was found to have even greater difficulty than a control group in the area of logico-experimental reasoning.

#### Formation of beliefs

Hemsley & Garety (1986) reviewed the development and maintenance of abnormal beliefs. Two factors appear significant; the formation of beliefs is affected by expectation and by relevant information from the environment. They describe how 'normal' strongly held beliefs are highly resistant to change. Potential biases can occur at different stages of hypothesis evaluation: hypothesis formulation – although seemingly essential, this initial stage may not occur at all. Patients appear at times to translate abnormal experiences directly into belief statements without any intervening stage of considering evidence. Alternatively the beliefs developed may be untestable, for example, 'that the world will end in 2093.' Errors may be made in assessing component probabilities and errors in summation of probability occur; for example, 'a subject may express 100% confidence that the IRA were plotting against him but also a one in five chance that no such plot existed.' This is also recognised as a component of normal belief. Similarly, over-reliance on available data and the representativeness of data used occurs frequently. A young paranoid patient treated by Hemsley and Garety was preoccupied by his appearance and as a result felt that 80% of people were laughing at him. However, when accompanied by the therapist on a walk, he decided that 15% of people were simply smiling and not necessarily at him. Subjects may act as though a hypothesis is absolutely true without having seriously considered the possibility that it might not be. Information searching may either not occur, or where it does patients restrict the search to confirmatory evidence. Finally, the relationship between belief and action is far from simple, with

believing something is true not inevitably leading to acting as if it were true.

The formation of assumptions and beliefs may also differ between those with or without schizophrenia. Experimental social psychology has produced models of belief and attitude formation (e.g. Bem, 1970) and of the factors influencing the attribution of causality to people and events. These aspects are basic to the understanding of individuals' view of the world and the interpretation of their subsequent actions. Improved models of the relationship between emotion and cognition have further added to our knowledge of the way in which emotional states can influence reasoning (John, 1988).

### Schizophrenic thought content

The definition of delusions as 'irrational beliefs, out of keeping with a person's cultural (or socio-economic) background which are not amenable to reason' would seem to preclude reasoning approaches. Slater & Roth (1969) stated that "it is a waste of time to argue with a paranoid patient about his delusions . . ." and Hamilton (1984) advised psychiatrists, "not to go along with the patient's delusions and hallucinations; on the contrary, the patient should be encouraged to ignore them".

The psychotherapy literature has concurred with this approach (Rudden *et al.*, 1982), generally opposing 'confronting the reality of the delusion'. Techniques instead have included: ignoring delusional content while focusing on conflict-free areas, exploring delusional beliefs and experiences to assist in forming a rapport, and even participating in the delusion. However, avoidance of discussion of the prime concerns of the individual is contrary to conventional psychiatric practice. It would inhibit the establishment of a therapeutic relationship which is central to psychiatric management enabling engagement in rehabilitation, or persuasion of the person to be admitted to hospital or to comply with psychopharmacological strategies.

### Reasoning with delusions

By presuming to introduce reasoning approaches to delusional thought, cognitive therapy therefore requires re-examination of the concept of delusion. The present definitions require judgements to be made by those determining whether the person is deluded or not. Whether a belief is irrational and out of keeping with a person's cultural background is dependent on the assessor's understanding of the person's mode of thinking and appreciation of the person's culture. This may be much more difficult than it appears as, for example, beliefs in the supernatural with similarities to thought interference and delusions of control have been shown to be

widespread in Western culture (Cox & Cowling, 1989). The Present State Examination elicits information about telepathy and hypnosis in implicit recognition of the similarities of these phenomena to psychotic symptoms. Such culturally widespread and distinctly unscientific beliefs merge into psychotic delusions. Critical analysis of where, or even whether, a borderline exists between such beliefs is overdue.

That delusions are not amenable to reason is held to be self-evident: "neither previous experience nor compelling counter-arguments can shake the certainty of the delusion" (Scharfetter, 1980). However, few controlled investigations using appropriate rating instruments have been performed to establish this to be the case, and these few studies (e.g. Watts *et al.*, 1983) have suggested that the contrary can occur. Delusions seem to be held with differing degrees of intensity and last for varying lengths of time, that is, fluidity is characteristic. One might anticipate that whether they are amenable to reason will depend on: firstly, the strength of the belief. This may be in part related to the time period over which the belief has been present. Secondly, the consequences of relinquishing the belief; increased social acceptability may be a reason for doing so, whereas investment of self-esteem may militate against. For example, where a patient has acted in accordance with paranoid or grandiose beliefs over many years, he may have forsaken or not developed a career, marriage, and/or family and faced ridicule because of the beliefs. The effects on his self-esteem of incorporating contradictory evidence may be a factor in his continuing to hold them, although he may discontinue acting upon them. Thirdly, the availability of alternative explanations; this will depend, in part, on the depth of understanding of the beliefs and their antecedents by the therapist. It will also be determined by the therapist's ability to develop appropriate persuasive strategies in appropriate sequence and in an atmosphere of collaborative empiricism, and the persistence to follow them through. Fourthly, the way in which the explanations are presented. Watts and colleagues (1983) produced some evidence that attempts at modification rather than direct confrontation seemed more likely to be successful. Finally, the relationship with the therapist; the person would seem more likely to explore a delusion and discuss alternative explanations with someone who is trusted and respected.

### Delusional perception

It would seem a prerequisite of the use of reasoning approaches that therapist and patient can identify meaning in delusional material and then assess alternative explanations. Delusional perception would appear to be particularly difficult in this regard. However Schneider's original descriptions

(1973) are worth revisiting. He has defined delusional perception as occurring where:

“abnormal significance . . . [is] attached to a real percept without any cause that is understandable in rational or emotional terms. This abnormal significance tends mostly towards self-reliance. . . . Delusional perception is not the same as investing an experience with abnormal significance for some reason. We need not concern ourselves with misinterpretations or errors of reasoning for which there is an understandable, rational cause.”

It is, however, unclear how delusional perception is to be differentiated from these latter, that is, misinterpretations. Whilst presenting a categorical definition, the elaboration begins to suggest a dimension or continuum which his discussion of ‘delusional intuitions’ reinforces. He describes these as:

“sudden delusional ideas, such as a summons from God, ideas of special powers, of persecution, of being loved . . . [and that] . . . there is no conceptual difference between them and the sudden compulsive thoughts and “overvalued” ideas which occur to non-psychotics.”

He nevertheless continues to imply a clear division between delusional perception, which cannot be understood, and delusional intuition and normal belief, which can be. He gives an example:

“to a person not suffering from a delusion two crossed pieces of wood, if he notices them at all, are nothing but a pattern made out of two pieces of wood. To a schizophrenic they may mean more, indicating perhaps that he will be crucified.”

Although Schneider presents this as a clear contrast, one might postulate that the symbolism of the cross is too well recognised, especially with pieces of wood, to go unrecognised by all people who do not have schizophrenia, and intermediate positions between delusional perception and no significance would be as likely to be taken. His further discussion could again be taken to reinforce the concept of a continuum between psychotic and normal thinking:

“it is not unusual for a non-psychotic person to have a symbolic perceptual experience which is reminiscent of delusional perception. For example, someone is walking along a street, the street lamp goes out, and it suddenly comes into his mind that his sweetheart has had an accident. . . . We are dealing with a different kind of experience for it is not ‘without cause’, since the interpretation is understandable in terms of the person’s prevailing mood, which is at least one of mild, private concern. . . . Isolated symbolic experiences of this kind, therefore, in our view come within the delusion-like reactions which are of common occurrence . . . there is, moreover, no trace of personal involvement by a ‘higher reality’.”

When this latter takes place, deviation from reality into psychosis, by definition, has occurred although even this is complicated by religious belief. His evidence would therefore appear to be supportive of the opposite position to that which he initially proposes; that is, that delusional perception – at least to some degree – may be understandable in rational or emotional terms.

#### *Delusional mood*

Jacobs (1980) provides a conceptualisation of the development of delusions from delusional mood from a cognitive perspective. He initially refers to Jaspers’ description of:

“how prior to the genesis of delusions, the person feels uncanny. Gross uncertainty drives him instinctively to look for some fixed point to which he can cling. The sudden consciousness of an idea, even though false, immediately has a soothing, strengthening and euphoric effect.”

Delusional mood, with its accompanying feelings of agitation, perplexity and fear in which the person may feel alienated, different, and isolated, is relieved by the feeling of certainty that the delusion provides. Jacobs suggests that in the ‘lucid delusional schizophrenic the ability to metathink (that is, think about one’s thinking) is grossly impaired or absent’ and that whereas normally thinking precedes knowing in this instance the reverse occurs. Alternatively it may be that the reassurance of finding a meaningful explanation, however improbable, in a distressing and perplexing situation is sufficient to explain why the delusion is reached for and clung to, so energetically and with such certainty (Roberts, 1992).

Harrow & Prosen (1978) took an experimental approach to identifying meaning in schizophrenic thought by examining the significance of the content disclosed under controlled conditions. They proposed that intermingling of material that comes from the past or current experiences of people who have schizophrenia occurred in their speech. Members of their research team used taped interviews to rate a group of young schizophrenic patients’ responses in a standardised manner. These included whether or not the bizarre responses were influenced by the patients intermingling material from their past or current experiences, and whether or not the responses were influenced by disordered logic. Their results demonstrated intermingling occurring in 80% to some degree. When the idiosyncratic, bizarre or ‘autistic’ responses were examined closely and the tape under discussion explored more carefully with the patients, it became clear that there was a rationale for the inappropriate material that had been intermingled into their responses. Of those intermingling material, over 90% were rated as producing material related

in some way to their personal lives. The principal finding was confirmation that what their patients were saying had meaning to them even when they were thought disordered. In further work in deluded subjects, Forgas & De Wolfe (1974) noted that delusions represent events of personal significance with a basis in historical reality.

Bizarre expressions are frequent in schizophrenia and are often the reason used by non-professionals for deeming a person 'crazy'. Cutting & Murphy (1988) proposed that a disorder of the way patients with schizophrenia think about or judge events in the real world exists, describing this as deficient real-world knowledge or 'lack of common sense'. They give an example of a patient, who had been hospitalised for 27 years at which stage he had been training to be a barrister. He expressed the belief that he thought that he was still suffering from 'flu or pneumonia caught from a thermometer whilst in hospital at the start of his illness. This and other bizarre notions about the real world, they suggest, could be described as delusions but this stretches the term to include any bizarre statement about the world, whether it is a strongly held belief or not. One could also argue that this signifies an intrinsic thought disturbance, that is, an inability to follow logical inferences, or over-inclusive categorisation (including thermometers as disease causes rather than measures of a disease process). Their alternative to these conventional responses, however, is to suggest a breakdown or gap in knowledge of the real world. They suggest that knowledge itself is deficient rather than the thinking process itself being abnormal. The practical implications of this finding are considerable. We could attempt to improve such knowledge of everyday issues directly and this may be one of the mechanisms by which social skills training in this group can be effective. We could also isolate specific areas of deficit and focus attention upon them.

### Hallucinations

Hallucinations are not uncommon; the Epidemiological Catchment Survey in the USA sought to investigate this by asking questions such as, 'Have you ever had the experience of seeing something or someone that others who are present could not see – that is had a vision when you were completely awake?' and similarly for other modalities. Between 10–15% of the population reported experiencing hallucinations with an annual incidence of 4–5% (Tien, 1992). This finding has been given support by Romme *et al* (1992) who described examples of large numbers of people who reported hearing voices but were not troubled by them.

The hallucinations of schizophrenia would be expected to be different in type from those experienced by non-psychotics. However, Bentall & Slade (1985b) found that of 136 students tested, 18% claimed that they often hear a voice speaking their thoughts aloud – usually regarded as a first-rank symptom of schizophrenia. There is also evidence from deprivation and other states that phenomena much like, if not identical with schizophrenic diagnostic symptoms can occur, but not progress to schizophrenia. People prone to schizophrenic hallucinations may be more suggestible and susceptible to hypnosis. Bentall & Slade (1985a) summarise evidence to this effect in an investigation of reality testing deficiencies in hallucinators. Using reality testing methods of 'signal detection theory', patients who hallucinated were matched with control patients and were significantly more likely to 'detect' a signal when one was not present. Finally emotional significance may reinforce auditory and visual imagery – as in post-traumatic stress disorder (Wilcox *et al*, 1991).

### Developing an explanatory model with patients

Vulnerability–stress theories of schizophrenia (Zubin, 1987) provide a foundation for explaining the significant predisposition that some have to schizophrenia and its relationship to life events and circumstances (Bebbington *et al*, 1993). Patients are predisposed for genetic, neuropathological and environmental reasons to the effects of stress which manifests itself in the features of the disorder. Further, explanations appropriate to the individual's symptoms and circumstances can be expected to help to decrease some of the fear attached to patients' experiences. For example, abdominal discomfort might be delusionally interpreted as the effects of voodoo: an alternative explanation would be poor diet or a 'nervous stomach'. Such explanations are assisted by use of evidence about the occurrence of similar, sometimes identical, symptoms and signs associated with schizophrenia, in normal subjects.

Hallucinations, delusions and thought disorder occur in organic confusional states (for example, severe infections, delirium tremens from alcohol withdrawal, and drug-induced states). Schizophrenic-like symptoms and signs have also been shown to occur in situations which have no clear organic basis. Examples include hostage situations (Siegel, 1984), solitary confinement (Grassian, 1983) and deprivation states. Sensory deprivation has been particularly intensively researched (reviewed in Slade, 1984). In one such study, Leff (1968) concluded that:

“this investigation has shown that the perceptual experiences of normal people under conditions of sensory deprivation overlap considerably with those of mentally ill patients.”

Increased suggestibility appears to occur in deprivation states. An early study at McGill University (Slade, 1984) presented students with a one-sided account of psychic phenomena designed to persuade them of the existence of such forces. One group was subjected at the same time to conditions of sensory deprivation, the other not; the experimental sensory-deprived group showed greater attitude change, became more accepting of such phenomena, than the control group.

Oswald (1974) described experimental work on sleep deprivation with six medical students who were kept awake for 108 hours. His descriptions of these experiments are illuminating:

“at times they made senseless remarks . . . shortly after suddenly saying, ‘who to begin’ one bent down and kissed the EEG paper . . . a sleep deprived man . . . often describes ‘seeing things’ . . . surfaces of objects seem to swirl and change, the wallpaper seems to come to life, people or faces appear suddenly, only to vanish upon drawing nearer . . . ‘Hearing things’ too is quite common . . . most striking is the unpleasant nightmare-like day-dream life into which some fall . . . oblique remarks and veiled hints begin to be made, to indicate that a new understanding has dawned of how some organisation, or the experimenters, are engaged upon some secret and harmful plot.”

He concluded by saying that:

“the irrational thinking of sleep-deprived persons . . . resembles that of certain mental illnesses, notably paranoid schizophrenia.”

States of sleep deprivation are common before acute psychotic breakdown and ratings of psychosis and insomnia correlate strongly (Meltzer *et al*, 1970). Although it might be concluded that this is simply the nature of psychosis – that the more severe it is, the more disturbed sleep will be – the reverse may be as important; the more sleep disturbed the patient the more psychotic he will be. The sleep disturbance may be exacerbating the psychotic symptoms. Brief psychotic episodes following a period of insomnia induced by overwork, caring for relatives, and so on, often appear to take this form and remit rapidly with adequate sleep and sedation.

#### **Applications of cognitive behavioural therapy in schizophrenia**

Sporadic descriptions of the application of cognitive therapy to patients with schizophrenia have surfaced

over the past 40 years. Beck (1952) first described its use in a patient who believed he was being followed and watched by 50 members of the FBI. The patient was assisted in tracing the antecedents of the delusion and introduced to a technique of reality-testing which modified it. Beck and colleagues (Hole *et al*, 1979) followed this early work up with a description of eight patients of whom half appeared to improve using cognitive techniques.

In the intervening period, Watts *et al* (1983) in a pilot study had demonstrated that the intensity of paranoid delusions could be reduced using belief modification techniques. Differences in perceptual information processing (Frith, 1987) and attention in schizophrenia and control subjects may also affect cognitive performance and this has been used in the development of cognitive remediation strategies (Green, 1993). The Berne group (Brenner, 1989) have developed an Integrated Psychological Treatment programme which consists of therapeutic interventions targeted at reducing attentional/perceptual and cognitive dysfunctions by improving cognitive differentiation, social perception, verbal communication, social skills, and interpersonal problem-solving. While this programme has been demonstrated under controlled conditions to considerably reduce cognitive deficits it has not yet led to equivalent improvements in behaviour.

Perris (1988) has described the use of ‘intensive cognitive therapy’ with young patients in small therapeutic communities in Sweden. His description is based particularly on attachment theory with assimilation of the techniques used by Beck in anxiety and depression. Lowe & Chadwick (1990) focus on the gathering of evidence with verbal challenge in the treatment of delusions or beliefs about the reality of hallucinations and Fowler & Morley (1989) on improving coping abilities. Kingdon & Turkington (1991, 1994) have described cognitive behavioural techniques which draw from the work of Beck (Beck *et al*, 1979) and Ellis (1962) with the use of a normalising rationale. The techniques proved acceptable to a group of 64 patients and their families and safe over periods ranging from 2 to 5 years.

#### **Techniques used**

Positive symptoms are all theoretically amenable to structured reasoning and behavioural approaches. Symptoms are traced back (‘examining the antecedents’) to the approximate time of their onset. Inductive questioning may be used to identify faulty cognitions from this period. Attempts are made to understand delusional beliefs in collaboration with

the patient by examining why significance was attached to specific events or circumstances. Alternative explanations are then debated using a normalising rationale where appropriate. That is, that the illness has developed because of some vulnerability which has made them sensitive to specific stressors, life events and circumstances, at that particular point in their life. Such stressors might be exacerbated by sleep and sensory deprivation caused by, for example, overwork and isolation. This allows the patient, and others, to see themselves as not intrinsically different from others. Such explanations can assist in explaining and destigmatising their illness, and improve compliance with hospital admission and medication. Where sleep has been erratic, suggesting that 'whatever else is happening, you are clearly not sleeping properly and we need to help you rest as it seems likely that lack of sleep worsens the problems you have' can be useful in acute situations. Similarly, explaining that antipsychotic medication 'reduces agitation, can help with sleep and can improve, may even get rid of, the voices that you are hearing' can assist with compliance.

Anxiety and depression can be tackled in their own right as part of the overall strategy. Working cognitively with the emotional investment of delusions can also be effective although with mood-syntonic delusions (for example, elated mood with grandiosity, or paranoia with anger) the alternative and more penetrating technique of inference chaining has been used. This involves tracing a delusion to its underlying irrational belief and its implications. Direct confrontation is avoided and tactical withdrawal used when necessary to retain rapport. With hallucinations, 'reality-testing' is used to establish the uniqueness of the phenomena to the patient themselves. Alternative explanations then given consider evidence that hallucinatory phenomena can be related to stressful circumstances. Delusions of control and thought broadcasting can be compared to cultural beliefs in supernatural forces which allow rational argument to be used; for example, the scientific arguments and experimental evidence against the existence of telepathy can be utilised.

Fears of 'mental degeneration', violence, 'madness' itself, are decatastrophised with patients, families and their professional carers. Simple research ('homework') assignments are set to investigate delusional beliefs. Diaries or detailed recall allows pinpointing of precipitators of hallucinations or delusional beliefs. Once the paralysing effect of positive symptoms has been lessened, negative symptoms may show gradual amelioration but paradoxical intention can also be used to lower further anxiety or pressure to recover by reducing

expectations to realistic levels. Activity scheduling with 'mastery' and 'pleasure' recording (Beck *et al*, 1979) can aid this process. The approach is therefore a very flexible one aiming to produce changes in cognitions but with a particular focus on rapport development.

### Conclusion

Recent investigations suggest that cognitive behavioural techniques have shown grounds for optimism that they can complement pharmacological and other psychosocial techniques in schizophrenia. The techniques are consistent with work in neurosis and experimental evidence about psychosis. However, they challenge conventional belief about delusions and hallucinations by presenting evidence that they can be amenable to reasoning approaches when these are used in a non-confrontational and collaborative way with full exploration of alternative explanations. The use of management strategies which take account of the range of an individual's psychopathology seem more likely to prove successful than the isolated use of reasoning techniques. A series of studies are now underway to investigate this further.

This Editorial represents the personal views of the authors and should not be taken to be those of the Department of Health.

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(First received March 1993, final revision August 1993, accepted September 1993)