PSYCHOLOGICAL ASPECTS OF RELAPSE IN SCHIZOPHRENIA

ANDREW IAN GUMLEY

B.A. (Hons), M.App.Sci (Clinical Psychology)

Thesis submitted in fulfilment of the requirements of the degree of Doctor of Philosophy

Department of Psychology

University of Stirling

Scotland

June 2002

For Lee-Anne

Acknowledgements

As an undergraduate at Queen's University of Belfast I had the opportunity to act as a volunteer befriender at the National Schizophrenia Fellowship Drop-in Centre, Belfast. During my time there one user of the service experienced a relapse and subsequently committed suicide following her admission to hospital. Prior to that relapse, I witnessed numerous changes in her expression of her emotions: from anger and hostility to depression, shame and guilt. This experience has stayed with me over the last 11 years, and has been, for me, a source of perplexity leading to my enquiry and investigation into psychosis and relapse. As part of this enquiry there are numerous individuals to whom I am indebted.

First, I am deeply grateful to Professor Kevin Power who has supported, guided, assisted, and mentored me from conceptualisation and design of this study, through data collection, to analysis and completion. Kevin is an outstanding supervisor, colleague and friend, to whom I will never be able to repay the debt of gratitude, which I owe to his confidence and continuing constructive criticism. I am also grateful to members of the West of Scotland Early Intervention Trial Research Group: Margaret O'Grady, Lisa McNay, James Reilly, Alison Tait, Zoe Chouliara, Athanasios Karatzias, and Margaret Maloney. Margaret O'Grady acted as diagnostic assessor for participants entering the study. I am also grateful to Margaret for the considerable personal support she has provided to members of the research team including myself during the study. Lisa McNay and James Reilly screened potential participants, recruited participants to the study, liased with participants' treatment teams, and undertook repeated assessments. Alison Tait assisted with the development and implementation of the individualised early signs monitoring system. Zoe

Chouliara and Athanasios Karatzias assisted with data coding and preliminary analyses, and Margaret Maloney who provided secretarial and administrative support.

I am also grateful to the Chief Scientist Office, Scottish Executive who funded the study, and Ayrshire and Arran Primary Care Trust, who provided addition financial support through the Chief Scientist Office Support Fund. I am grateful to members of staff in Ayrshire and Arran Primary Care Trust and Greater Glasgow Primary Care Trust for their support during the study. I am particularly grateful to Mrs Zena Wight and Mr Robert Smith for their encouragement and personal and managerial support during the project. I am also grateful to Dr Kate Davidson for her mentorship and friendship to me. Kate has been a source of inspiration and I am grateful to her for helping me to develop my skills as a cognitive psychotherapist. I would also like to express my deepest gratitude to my Mum and Dad who taught me the value of working towards a goal and have always encouraged me in my education.

The treatment delivered during this study was provided during times of crisis and often involved highly unsociable hours. I am forever indebted to my wife Lee-Anne for her unconditional love, friendship, and dedication, often during periods when I was distracted by long hours of research, treatment provision, and write-up. This thesis is dedicated to her.

A final thanks goes, of course, to the individuals who gave their time and experience, and participated in the study.

TABLE OF CONTENTS PAGE

CHAPTER 2

RELAPSE AND RELAPSE PREVENTION IN SCHIZOPHRENIA

CHAPTER 3

PSYCHOLOGICAL MODELS OF RELAPSE

CHAPTER 4

COGNITIVE BEHAVIOUR THERAPY FOR RELAPSE: A TREATMENT PROTOCOL

CHAPTER 6

A NON-BLIND RANDOMISED CONTROLLED TRIAL OF TARGETING COGNITIVE BEHAVIOUR THERAPY. II: REMISSION AND SOCIAL FUNCTIONING AT 12 MONTHS

TABLES AND FIGURES		PAGE
TABLE 1.1	DSM-IV CRITERIA FOR SCHIZOPHRENIA	11
TABLE 1.2	DSM-IV CRITERIA FOR SCHIZOAFFECTIVE DISORDER	17
TABLE 1.3	DSM-IV CRITERIA FOR SCHIZOPHENIFORM DISORDER	18
TABLE 1.4	DSM-IV CRITERIA FOR DELUSIONAL DISORDER	19
TABLE 1.5	FOLLOW-UP STUDIES IN THE PRE-NEUROLEPTIC ERA	28
TABLE 1.6	LONG TERM FOLLOW-BACK STUDIES	30
TABLE 1.7	PROSPECTIVE STUDIES OF COURSE AND OUTCOME IN SCHIZOPHRENIA	35
TABLE 1.8	THE MADRAS LONGITUDINAL STUDY	38

Abstract

Following a review of the relevant literature a Cognitive Behavioural treatment protocol for the prevention of relapse in schizophrenia is presented. This treatment protocol is investigated in a 12-month non-blind randomised controlled trial comparing Cognitive Behavioural Therapy and Treatment as Usual (CBT + TAU) versus Treatment as Usual (TAU) alone. Three studies of treatment outcome are described: relapse and admission, remission and social functioning, and psychological distress. 144 participants with a DSM-IV Schizophrenia spectrum disorder were randomised to receive either CBT + TAU (n = 72) or TAU alone (n = 72). 11 participants dropped out (6 from CBT + TAU, 5 from TAU alone) leaving a completers sample of 133. Participants were assessed at entry, 12-weeks, 26-weeks, and 52 weeks. CBT was delivered over two stages: a 5-session engagement phase which was provided between entry and 12-weeks, and a targeted CBT phase which was delivered on the appearance of early signs of relapse. Over 12-months CBT + TAU was associated with significant reductions in relapse and admission rate. The clinical significance of the reduced relapse and admission rate amongst the CBT + TAU group was investigated. First, receipt of CBT + TAU was associated with improved rates of remission over 12-months. Second, clinically significant improvements in social functioning were investigated. Again, receipt of CBT + TAU was associated with clinically significant improvements in prosocial activities. However, receipt of CBT + TAU was not associated with improvements in psychological distress over 12-months. The theory underpinning the cognitive behavioural treatment protocol predicted that negative appraisals of self and psychosis represent a cognitive vulnerability to relapse. This hypothesis was investigated during the present

study. After controlling for clinical, treatment and demographic variables, negative appraisals of self and entrapment in psychosis were associated with increased vulnerability to relapse, whilst negative appraisals of self were associated with reduced duration to relapse. Finally, an explorative study of changes in negative appraisals of psychosis and self over time, which were associated with relapsers versus non-relapsers from the TAU alone group, was conducted. This study found a strong association between the experience of relapse, increasing negative appraisals of psychosis and self, and the development of psychological co-morbidity in schizophrenia. Results of treatment outcome and theoretical analyses are discussed in terms of their relevance to the further development of psychological models and treatments for psychosis.

Chapter 1

Schizophrenia: Diagnosis, course and outcome

1.1 A First Person Account of Schizophrenia

Schizophrenia *"is to experience personal and social life as a maelstrom, to find one's world and oneself in perceptual disintegration and renewal, trouble and anguish, ambiguity and contradiction: to be part of a universe in which all that is solid melts into air. The chaos and trauma is intense. My perception of everything around me becomes much more heightened. My relations with other people, while they seem to be normal and usual to those who interact with me are problematic. I have no control. My mind becomes bombarded with thoughts, I have beliefs about myself, which are totally unfounded, the paranoia is intense. I worry about the slightest thing from did I say the right thing, did I frighten or harm that person, or do they think I'm mad. I think that my psychosis is inherently evil; a manifestation of the devil. It attacked and nearly destroyed me, and that's why I believed that the devil had taken my soul"*

This personal testimony, written by an individual who participated in the research described in this thesis encapsulates the major theme, which permeates this work. That is, this account illustrates the personal significance and meaning attached to the subjective experience of acute psychosis. Indeed, it is my proposal that understanding the personal meanings and appraisals attached to the experience of psychosis are critical to the development of psychological approaches to the conceptualisation and prevention of relapse in psychosis.

1.2 Historical Perspectives

In 1896, Emil Kraepelin distinguished between two forms of insanity: Manic-Depressive insanity and Dementia Praecox. The term Dementia Praecox was taken from the work of Morel (1856) but also included Kahlbaum's concept of catatonia, Hecker's (1871) concept of hebephrenia, and what Kraepelin described as 'Dementia Paranoides'. This split between affective disorder and Dementia Praecox rested on his observation of the long-term outcome of these disorders. Kraepelin proposed that Dementia Praecox was a progressive disease of early onset, which either pursued a steady deteriorating course to chronic invalidism or, if improvement did occur, there was only partial recovery. Kraepelin proposed that Dementia Praecox was a disease of the brain, and speculated that the aetiology was endocrinological. Kraepelin's proposals were in the context of advances in other areas of medicine, for example Broca in 1861 discovered that a lesion in the fronto-temporal cortex produced a type of aphasia; Parkinson in 1871 had described paralysis agitans; Duchene in 1847 described motor neurone disease, and Korsakoff in 1890 gave a description of a diencephalic amnesic syndrome.

Bleuler (1911) confirmed Kraepelin's concept of Dementia Praecox, however he also changed it fundamentally. Bleuler proposed that Dementia Praecox was not necessarily either a dementia or a disorder of early onset, rather he saw Dementia Praecox as a splitting of psychic functions. Bleuler, influenced by the writings of Sigmund Freud at the time, thought of schizophrenia in psychological rather than neuropathological terms. Bleuler coined the term schizophrenia, meaning 'split mind', because he believed that the disorder was

due to the separation or splitting of normally integrated functions that co-ordinate thought, affect and behaviour. He described four fundamental symptoms: ambivalence, disturbance of association, disturbance of affect, and preference for fantasy over reality. Indeed, Bleuler saw deficits in affect as the core feature of the disorder. It is noteworthy that two psychotic features emphasised in current diagnostic criteria, hallucinations and delusions, were not crucial for Bleuler's diagnosis of schizophrenia. Rather, symptoms such as hallucinations and delusions were seen as psychological reactions to an underlying process.

Bleuler also differed from Kraepelin with respect to prognosis. He saw prognosis in Schizophrenia as a complex and interwoven concept that could be determined by subgroups of schizophrenias or indeed individually. In sharp contrast to Kraepelin, Bleuler emphasised theory as a means of determining the diagnostic relevance of signs and symptoms. In addition, the relevance of his reformulation of Dementia Praecox as a group of schizophrenias foreshadowed contemporary views discussed in this chapter that schizophrenia is a heterogeneous condition.

Kraepelian and Bleulerian perspectives and their hypotheses regarding the biological and psychological nature of schizophrenia have permeated the research literature throughout the 20th Century. Indeed, key to both Kraepelian and Bleulerian views of schizophrenia is the concept of prognosis and outcome. Indeed, research findings concerning the nature of onset, prognosis

and outcome are intimately linked to the classification systems for schizophrenia, which have evolved since the work of Kraepelin and Bleuler.

1.3 Classification

Bleuler's and Kraepelin's observations evolved into current classification systems, in particular the World Health Organisation's International Classification of Diseases (ICD) and the American Psychiatric Association's (APA) Diagnostic and Statistical Manual of Mental Disorders (DSM). Early diagnostic systems, for example the first DSM (APA, 1952) defined all psychiatric disorders as reactions to environmental causes or events. Definitions were vague and did not include specific operational criteria. Such imprecise definitions allowed clinicians much discretion in making diagnoses. The second edition of DSM (APA, 1968) dropped the term "reaction" and gave some consideration to differential diagnosis, however clear operational criteria continued to be lacking. Both the first and second editions of DSM gave priority to the presence of psychosis as the key feature of the disorder. However, DSM-II contained a category of "Schizophrenia- latent type" to describe those individuals with clear symptoms of schizophrenia but with no history of psychotic symptoms. Whilst the presence of this category did not detract from the primacy of psychotic symptoms, the term latent implied the presence of, but as yet an unexpressed psychosis. However, it did reflect an important attempt to clarify the role of psychosis in schizophrenia.

Dissatisfaction with diagnostic criteria grew out of a number of factors including problems with reliability, the growing view that mental illness was a

myth, and that diagnostic labels resulted in harm to individuals through stigmatisation and marginalisation. The development of classification systems has therefore focused on the refinement of diagnoses, the development of reliability through clear operational criteria, and the adoption of empirical methods (e.g. Schneider, 1959; Langfeldt, 1960; Robins & Guze, 1970; Feighner et al., 1972). For example, Feighner et al (1972) offered diagnostic criteria, which continued to emphasise the necessary presence of psychotic symptoms such as hallucinations, thought disorder, or delusions. However, Bleuler's emphasis on the disturbance of affect was minimised, whilst other factors which emphasised chronicity were highlighted. These necessary criteria were the "presence of a chronic illness of at least six months duration prior to initial evaluation", and at least two of the following for definite schizophrenia; being single, poor premorbid history, family history of schizophrenia, absence of alcoholism or drug abuse in the preceding year, and onset of illness prior to 40 years of age. On the other hand, Schneiderian criteria (Schneider, 1959) did not emphasise the pattern and nature of onset, but rather attempted to offer clear operational criteria for the classification of psychotic symptoms. Schneiderian criteria have heavily influenced the development of Research Diagnostic Criteria (RDC; Spitzer & Endicott, 1978), which in turn formed the basis of the third edition of the DSM (APA, 1980). DSM-III contained several innovations including field tests of diagnostic reliability, specific inclusion and exclusion criteria, multiaxial diagnoses, and a focus on the description of syndromes and course of disorders rather than inferences regarding aetiology. Both DSM-III and DSM-

III-R (APA, 1987) criteria did however continue to emphasise the presence of psychotic symptoms.

1.4 Current Diagnostic Criteria

The Diagnostic and Statistical Manual of Mental Disorders- 4th Edition (DSM-IV; APA, 1994) defines the essential features of Schizophrenia as a mixture of positive and negative symptoms that have been present for a significant proportion of time during a one month period (or a shorter time if successfully treated), but with signs of the disorder persisting for at least six months (Criterion A and C). DSM-IV emphasises that these characteristic symptoms must be present in the context of significant impairment in social and occupational dysfunction in one or more areas such as work, interpersonal relationships, or self care (Criterion B). The diagnostic criteria for Schizophrenia are described in Table 1.1 below.

Various subtypes are specified by DSM-IV including Paranoid, Disorganised, Catatonic, Undifferentiated and Residual. In addition, DSM-IV allows for the inclusion of specifiers to indicate the characteristic course over time including, Episodic (with inter-episode residual symptoms, with prominent negative symptoms, or with no inter-episode residual symptoms), Continuous (with prominent negative symptoms), Single Episode (with partial remission, full remission) or Other, Unspecified Pattern.

Table 1.1 Diagnostic Criteria for Schizophrenia

A. *Characteristic symptoms:* Two (or more) of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated).
(1) delusions
(2) hallucinations
(3) disorganised speech (e.g. frequent derailment or incoherence)
(4) grossly disorganised or catatonic behaviour
(5) negative symptoms, i.e., affective flattening, alogia, or avolition.
Note: Only one Criterion A symptom is required if delusions are bizarre or hallucinations consist of a voice keeping up a running commentary on the person's behaviour or thoughts, or two or more voices conversing with each other.

B. *Social/ occupational dysfunction:* For a significant portion of time since the onset of disturbance, one or more major areas of functioning such as work, interpersonal relations, or self care are markedly below the level achieved prior to onset (or when the onset is in childhood or adolescence, failure to achieve expected level of interpersonal, academic, or occupational achievement).

C. *Duration:* Continuous signs of the disturbance persist for at least 6-months. This 6-month period must include at least 1-month of symptoms (or less if successfully treated) that meet Criterion A (i.e. active phase symptoms) and may include prodromal or residual symptoms. During these prodromal or residual periods, the signs of the disturbance may be manifested by only negative symptoms or two or more symptoms listed in Criterion A present in an attenuated form (e.g. odd beliefs, unusual perceptual experiences).

D. *Schizoaffective and Mood Disorder Exclusion:* Schizoaffective disorder and Mood Disorder with Psychotic Features have been ruled out because either (1) no Major Depressive, Manic or Mixed Episodes have occurred concurrently with the active phase symptoms; or (2) if mood episodes have occurred during active phase symptoms, their total duration has been brief relative to the duration of the active and residual periods.

E. *Substance/ general medical condition exclusion:* The disturbance is not due to the direct physiological effects of a substance (e.g. a drug of abuse, a medication) or a general medical condition.

F. *Relationship to a Pervasive Developmental Disorder:* If there is a history of Autistic Disorder or another Pervasive Developmental Disorder, the additional diagnosis of Schizophrenia is made only if prominent hallucinations or delusions are also present for at least a month (or less if successfully treated).

1.4.1 Criterion A

Positive symptoms (Criterion A1-A4) include distortions or exaggerations of inferential thinking (delusions), perception (hallucinations), language and communication (disorganised speech), and behavioural monitoring (grossly

disorganised or catatonic behaviour). Definitions of positive symptoms in DSM-IV draw heavily on Schneider's list of first rank symptoms.

1.4.1.1 Delusions (Criterion A1)

Delusions are defined within DSM-IV as "erroneous beliefs that usually involve a misinterpretation of perceptions or experiences. Their content may reflect a variety of themes; for example persecutory, grandiose, referential, bizarre and religious. Persecutory delusions involve the belief that the individual is being made subject to being followed, tormented, spied on or ridiculed. Referential delusions involve the person believing that certain gestures, comments, passages from books, newspapers, television or radio are specifically directed at them. Despite being a characteristic feature of Schizophrenia, bizarre delusions are difficult to judge as the criteria on which to judge "bizarreness" will vary across cultures. An example of a bizarre delusion may be the belief that one's internal organs have been replaced with those of another person. Delusions, which express a loss of control over mind and body, are also considered by DSM-IV as bizarre. These include the belief that one's thoughts are being removed by some outside force ("thought withdrawal"), that thoughts are being placed in one's head by an outside force ("thought insertion") or that one's thoughts and actions are under external control ("passivity" or "delusions of control"). If delusions are judged to be bizarre within DSM-IV, this single symptom satisfies Criterion A for Schizophrenia.

1.4.1.2 Hallucinations (Criterion A2)

Hallucinations can occur in any sensory modality (auditory, visual, tactile, olfactory or gustatory), although auditory hallucinations are judged to be the most common characteristic of schizophrenia. DSM-IV defines auditory hallucinations as the experience of familiar or unfamiliar voices, which are perceived as distinct from one's own thoughts. DSM-IV distinguishes between different types of auditory hallucinations, for example third person or second person hallucinations. If third person auditory hallucinations are present, then this single symptom satisfies Criterion A. Hallucination must occur in clear sensorium. Those which occur whilst falling asleep (Hypnagogic) or on waking (hypnapompic) are considered to lie within the range of normal experience. Other hallucinatory types of experiences are excluded from the diagnostic criteria, for example humming insides one's head, or voices which occur in the context of culturally appropriate religious experiences.

1.4.1.3 Disorganised thinking (Criterion A3)

The assessment of disorganised thinking, for example formal thought disorder, loosening of associations is primarily inferred by the individual's speech. The individual may slip off track from one topic to another ("derailment"), answers to questions may only be obliquely related or unrelated ("tangentially") or more rarely speech may be incomprehensible ("incoherence"). Mildly disorganised speech does not satisfy this criterion, as this is common and non-specific. The

symptoms must be severe enough to substantially impair communication.

1.4.1.4 Grossly disorganised or catatonic behaviours (Criterion A4)

This is defined as the presence of a variety of behaviours such as childlike silliness, unpredictable, or loss of goal directed behaviour. For example, the individual may be dishevelled, dress unusually, or behave inappropriately. On the other hand, catatonic behaviour is characterised by a marked decrease in reactivity to the environment and in extreme cases may be associated with complete loss of awareness ("catatonic stupor"), active resistance to instruction or movement ("catatonic negativism"), inappropriate or bizarre postures ("catatonic posturing"), or purposeless and unstimulated motor behaviour ("catatonic excitement"). Differential classification of catatonic behaviours is important as they can occur as part of a mood disorder, as part of a general medical condition, or as a consequence of a medication-induced movement disorder.

1.4.1.5 Negative Symptoms (Criterion A5)

Three negative symptoms are considered for the definition of Schizophrenia: affective flattening, alogia, and avolition. Features such as anhedonia are not included in the Criterion A definition of Schizophrenia but considered alongside other associated features such as inappropriate affect, dysphoric mood, or suicide.

Criterion A for Schizophrenia requires the presence of two out of five items (A1 to 5) to be present for at least one-month. Where delusions are judged to be bizarre, or if voices are "commenting" or "conversing", then the presence of only one item is required. Where these symptoms are successfully treated within one month, if the clinician judges that they would have continued without treatment for that period, Criterion A is fulfilled. In addition, unlike earlier versions of the DSM, psychotic symptoms have been de-emphasised. A diagnosis of schizophrenia may be made without the individual experiencing delusions or hallucinations. In that case gross disorganisation of speech or behaviour are still required for Criterion A.

1.4.2 Criterion B

The diagnosis of Schizophrenia requires the presence of significant problems in major areas of functioning (e.g. work, interpersonal relations, education or self-care). Functioning must be clearly below that which was achieved prior to the onset of the disturbance, or if onset is in childhood or adolescence, there is clear evidence of failure to achieve what would have been expected for the individual. For example, comparisons can be made with unaffected siblings, or educational progress and expectations can be examined.

1.4.3 Criterion C

Some signs of the disturbance must persist for a continuous period of at least six months, during which there will have been at least one month of active phase symptoms as defined in Criterion A. For example prodromal symptoms are often present prior to the active phase, which can occur in the form of mild

or subthreshold form of positive symptoms (e.g. digressive speech, ideas of reference, magical thinking, sensing the presence of an unseen person in the absence of auditory hallucinations). Furthermore, negative features can be considered, for example, increasing social withdrawal, disengagement from pleasurable activities.

1.5 Differential Diagnosis

Criteria D, E, and F are exclusion rules governing the diagnosis of schizophrenia, and require exclusion of Schizoaffective and Mood disorder (Criterion D), Substance/ general medical condition (Criterion E) and presence of a Pervasive Developmental Disorder (Criterion F).

1.5.1 Criterion D

The exclusion of Mood Disorders with psychotic features, and Schizoaffective Disorder are problematic due to the presence of mood disturbance during the prodromal, active and residual phases of Schizophrenia. If psychotic symptoms occur exclusively during the presence of mood disturbance, the diagnosis is Mood Disorder with psychotic features. In Schizoaffective Disorder (Table 1.2), there must be a mood episode, which is concurrent with active phase symptoms of Schizophrenia, and mood symptoms must be present for a substantial proportion of the total duration of the disturbance. However, active phase symptoms (delusions and hallucinations) must be present for a period of at least two weeks in the absence of prominent mood disturbance. By contrast, DSM-IV states that for the diagnosis of

schizophrenia mood symptoms have a brief duration relative to the total period of active phase disturbance in Schizophrenia.

Table 1.2 Diagnostic Criteria for Schizoaffective Disorder

A. An uninterrupted period of illness during which, at some time, there is either a Major Depressive Episode, a Manic Episode, or a Mixed Episode concurrent with symptoms which meet Criterion A for Schizophrenia.

Note: The Major Depressive Episode must include Criterion A1: depressed mood.

B. During the same period of illness, there must have been delusions or hallucinations for at least two weeks in the absence of prominent mood symptoms.

C. Symptoms that meet criteria for a mood episode are present for a substantial period of the total duration of the active and residual periods of the illness.

D. The disturbance is not due to the direct physiological effects of a substance (e.g. a drug of abuse, a medication) or a general medical condition.

Specify Type:
Bipolar Type: if the disturbance includes a Manic or Mixed Episode (or Manic, or a Mixed Episode with a Major Depressive Episode).
Depressive Type: if the disturbance only includes Major Depressive Episodes.

Schizophrenia differs from Schizophreniform Disorder on the basis of duration, where Schizophrenia requires the presence of symptomatology for at least six months, the total duration required for Schizophreniform Disorder must be at least one month but less than six months. In addition Schizophreniform Disorder does not require a decline in functioning (Table 1.3). Brief Psychotic Disorder is defined by the presence of delusions, hallucinations, disorganised speech, or grossly disorganised or catatonic behaviour lasting for at least one day but less than one month.

Table 1.3 Diagnostic Criteria for Schizophreniform Disorder

A. Criterion A, D, and E of Schizophrenia are met.

B. An episode of the disorder (including prodromal, active, and residual phases) lasts at least one month but less than six months. (When the diagnosis is made without awaiting recovery, it should be qualified as provisional)

Specify if:

Without Good Prognostic Features

With Good Prognostic Features: as evidenced by two (or more) of the following:

(1) onset of prominent psychotic symptoms within 4 weeks of the first noticeable change in usual behaviour or functioning.

(2) Confusion or perplexity at the height of the psychotic episode.

(3) Good premorbid social and occupational functioning.

(4) Absence of blunted or flat affect.

Schizophrenia is distinguished from Delusional Disorder on the basis of the nature of the delusion itself and the absence of other characteristic symptoms of Schizophrenia (e.g. hallucinations, disorganised speech and behaviour, or prominent negative symptoms). Delusional Disorder is difficult to distinguish from Schizophrenia (Paranoid Type), as this subtype does not include prominent disorganised speech or behaviour, flat or inappropriate affect, and is often associated with less decline in functioning compared to other types. When poor functioning is present in Delusional Disorder, it arises directly from the delusional beliefs (Table 1.4).

1.5.2 Criterion E

Psychotic symptoms occur in a wide variety of general medical conditions or in response to the use of substances and therefore must be excluded for diagnosis of Schizophrenia. For example sustained use of amphetamines and cocaine can cause delusions and hallucinations, or Ketamine can produce a mixture of positive and negative symptoms.

1.5.3 Criterion F

Schizophrenia and Pervasive Developmental Disorders such as Autism, share disturbances in language, affect and interpersonal relations. An additional diagnosis of Schizophrenia in the context of a Pervasive Developmental Disorder is only warranted if prominent delusions and hallucinations have been present for at least one month. Schizophrenia also shares features with a number of Axis II disorders; Schizotypal, Schizoid and Paranoid. An additional diagnosis of Schizophrenia is appropriate when symptoms are severe enough to satisfy criteria for Schizophrenia.

Table 1.4 Diagnostic Criteria for Delusional Disorder

A. Nonbizarre delusions (i.e. involving situations that occur in real life such as being followed, poisoned, infected, loved at a distance, or deceived by spouse or lover, or having a disease) of at least one month's duration.

B. Criterion A for Schizophrenia has never been met. Note: Tactile and olfactory hallucinations may be present in delusional disorder if they are related to the delusional theme.

C. Apart from the impact of the delusion(s) or its ramifications, functioning is not markedly impaired and behaviour is not obviously odd or bizarre.

D. If mood episodes have occurred concurrently with delusions, their total duration has been brief relative to the duration of delusional periods.

E. The disturbance is not due to the direct physiological effects of a substance (e.g. a drug of abuse, a medication) or a general medical condition.

Specify type (the following types are assigned based on the prominent delusional theme)

Erotomanic Type:	delusions that the other person, usually of a higher status, is in love with the individual.
Grandiose Type:	delusions of inflated worth, power, knowledge, identity, or special relationship to a deity or famous person.
Jealous Type:	delusions that the individual's sexual partner is unfaithful.
Persecutory Type:	delusions that the person (or someone to whom the person is close) is being malevolently treated in some way.
Somatic Type:	delusions that the person has some physical defect or general medical condition.
Mixed Type:	delusions characteristic of more than one of the above types but no one theme predominates.
Unspecified Type	

1.6 Criticisms of DSM-IV

Tsuang et al., (2000) have criticised the DSM-IV diagnostic formulation of schizophrenia on the basis of (1) the APA's view of schizophrenia as a discrete category, (2) their emphasis on psychosis, and (3) their use of descriptive attributes and the neglect of information on the aetiology of the disorder. Tsuang and colleagues propose that whilst current operational criteria enable reliability in diagnosis, the current formulation lacks validity.

1.6.1 Schizophrenia as a discrete category

DSM-IV's classification of schizophrenia as a discrete category implies that schizophrenia differs qualitatively from states of health and normality. Second, the use of discrete categories may result in artificial boundaries between conditions leading to elevated rates of co-morbidity. In contrast, dimensional models of schizophrenia which emphasise the nature and patterns of symptomatology (e.g. positive, negative and disorganisation symptoms) may provide a better account of the nature and role of combinations of biological and environmental risk factors which may be causal to schizophrenia (Gottesman, 1991; Peralta et al., 1997; Bell et al., 1998; Crow, 1998a; Toomey et al., 1998; Tsuang et al., 1999).

1.6.2 The role of psychosis in the definition of schizophrenia

The presence of psychotic symptoms including delusions, hallucinations, and conceptual disorganisation are essential criteria for the diagnosis of schizophrenia (DSM-IV, APA, 1994). However, this position can be criticised on a number of grounds. Bell and colleagues (1998) showed that the duration

of illness and the absence of affective symptoms correctly classified 97% of individuals with first episode psychosis as having DSM-III-R schizophrenia, and also correctly identified 97% of those who did not have schizophrenia. Inclusion of DSM-III-R's psychosis criteria did not improve prediction. Serretti et al (1996) obtained a four-factor solution for items on the Operational Criteria Checklist for Psychotic Illness (OPCRIT) with a large group of individuals with DSM-III-R schizophrenia or DSM-III-R mood disorder. Psychopathology of participants with schizophrenia and bipolar disorder overlapped on the disorganisation factor. Furthermore, Crow (1990, 1991, 1998b) has proposed that schizophrenia, schizoaffective disorder, and affective illness exist along the same continuum, rejecting the concept of distinct disease entities. Indeed a variety of evidence demonstrates that psychosis is not specific to schizophrenia, that Schneiderian symptoms occur in other disorders (Peralta & Cuesta, 1998), and indeed measures of psychosis do not differentiate schizophrenia from other disorders.

1.6.3 Aetiology

Key to the development of DSM-III, a characteristic retained by its subsequent editions, was the explicit separation of diagnostic criteria from speculation about aetiology. This results in a risk of disconnecting treatment of the disorder from its aetiology. Indeed this is particularly relevant to the current developments in the psychological conceptualisation and treatment of psychotic symptoms reviewed in Chapter 3. Knowledge about the aetiology of schizophrenia and its associated symptoms would potentially facilitate the development of more targeted treatment strategies. Indeed, the use of

operationalised diagnostic criteria without recourse to knowledge regarding the genesis of the disorder may result in a biased view of prognostic factors in longitudinal research (reviewed below), because those who do not meet strict criteria for schizophrenia are excluded from those studies. There is evidence that the pathophysiology and phenomenology of schizophrenia is in place long before the first psychotic episode (Kendler et al. 1995). Neurodevelopmental models of schizophrenia have emphasised that some combination of hereditary predisposition in combination with environmental events leads to disrupted neuronal development as early as the second trimester of life (e.g. Goldman-Rakic, 1995) and in line with neurodevelopmental theories, altered cell migration in glutamate mediated pathways in the hippocampus have been implicated in stress hyper-responsivity in dopamine which is not apparent until adolescence (Jentsch & Roth, 1999). Indeed this neurodevelopmental account has important ramifications for explaining the early subjective experience of schizophrenia, which is central to psychological accounts of the development of psychosis. In this sense the concept of biological or environmental vulnerability to schizophrenia is poorly understood, as indeed is the nature and pattern of transition to schizophrenia. Notwithstanding these limitations surrounding the diagnosis of schizophrenia, there has been considerable research into the course and outcome of the disorder, which is reviewed below.

1.7 Course and Outcome

Prognosis has been integral to the definition of Schizophrenia since Kraepelin combined seemingly disparate disease entities under the term "Dementia

Praecox". In early studies, clinical and methodological issues relevant to prognosis in schizophrenia were examined by a number of investigators (Vaillant, 1962, 1978; Stephens et al., 1966; Garmezy, 1968; Tsuang et al., 1979; Ciompi, 1980a, 1980b; Huber et al., 1980; McGlashan, 1984; Harding et al., 1987; Pietzcker and Gaebel, 1987; Robinson et al., 1999). Despite methodological variations, some consistent findings about predictors of favourable and unfavourable outcome have been noted. Poor prognosis was indicated by insidious onset, schizoid personality, withdrawal, restricted affective expression, never being married, and a family history of schizophrenia, whilst good prognosis was associated with acute onset, good pre-morbid development, prominent symptoms of anxiety and depression, the presence of precipitating factors, living in a family environment characterised by an absence of expressed emotion (EE), and being married. From the perspective of epidemiology Ram et al., (1992) note that most longitudinal studies have serious methodological limitations in sampling, diagnosis, and data collection procedures. For example, Carpenter and Strauss (1979) and Strauss and Carpenter (1978, 1979) note that the issue of prognosis and outcome in schizophrenia is influenced by the diagnostic criteria employed by investigators. When criteria for diagnosis include prolonged illness and presence of deterioration (e.g. Feighner Criteria, DSM-III Schizophrenia), outcomes are naturally skewed toward chronicity. When diagnosis is defined by cross-sectional positive symptoms (e.g. Schneiderian or Langfeldt schizophrenia), outcome is heterogeneous, and positive symptoms have only modest to negligible prognostic value. For example, in a naturalistic one-year prospective study, Pietzcker & Gaebel (1987) investigated the course of

schizophrenia with that of other psychiatric disorders including affective psychosis and neuroses. A total of 161 individuals (Schizophrenia, n = 86; Neuroses, n = 34; Affective Psychoses, n = 17; Other, n = 24) discharged from hospital were recruited and diagnoses were made according to the International Classification of Diseases (ICD-9th Edition, World Health Organisation (WHO), 1978b). Diagnosis of schizophrenia was based on the criteria of Bleuler (1911) and Schneider (1950). Pietzcker (1983) has shown high concordance between these criteria and Research Diagnostic Criteria (RDC; Spitzer & Endicott, 1978) and DSM-III criteria (APA, 1980). A total of 108 patients were followed up at one year, with an additional 14 reached via telephone interview and questionnaires. There were no significant differences between the initial and follow-up sample. At one year, all four diagnostic groups showed no significant differences in the areas of re-hospitalisation, employment, social contacts and symptomatology (on the whole a moderate to poor outcome) according to the Strauss-Carpenter (1972) outcome scale. Pietzcker & Gaebel (1987) hypothesised that the similarity of outcome across all diagnostic groups might be due to all four groups having a relatively long duration of illness thereby reflecting a predominantly chronic patient group. With specific respect to the schizophrenia group the mean duration of illness of this sample was 5.0 years, with a relapse rate of 48% in the follow-up period. Gaebel and Pietzcker (1987) further investigated predictors of outcome amongst this schizophrenia sub-sample at 1 year. Of the original schizophrenia sub-sample (n = 86), 57 were directly interviewed at 1 year, and a further 17 by means of telephone interview, giving a total follow-up sample of 74 (86%). There were no significant differences between this follow-up group and the

individuals who dropped out. This prognostic study is of interest because the authors employed four established prognostic scales for schizophrenia: (1) The Phillips Prognostic Scale (Phillips, 1953), (2) The Vaillant Prognostic Scale (Vaillant, 1964), (3) The Stephens Prognostic Scale (Stephens et al., 1966) and (4) The Strauss Carpenter Prognostic Scale (Kokes et al., 1977). None of these scales were able to predict either relapse or duration of re-hospitalisation. However using multiple regression analysis, a combination of items on the Strauss Carpenter Scale was able to predict 25% of the variance in the outcome in terms of duration of re-hospitalisation. Unemployment, poor quality of social contacts, the presence of behavioural abnormalities, and the absence of self-support predicted longer re-hospitalisation.

Perhaps the most striking methodological flaw in longitudinal studies has been the frequent failure to identify a homogeneous cohort with respect to illness stage. For prognostic research, cohort patients should be at the onset of their illness in order to test hypotheses about predictors of course and outcome. The majority of follow-up studies of individuals with schizophrenia have focused on consecutive admissions. These prevalence samples tend to over represent chronic cases remaining or returning to the treatment system (Cohen and Cohen, 1984). The specific proportion of first versus subsequent admission patients in any particular cohort will influence the findings on course and outcome. To illustrate, Shepherd and colleagues (1989) reported the 5-year status of 107 individuals with schizophrenia, 49 of whom having their first lifetime admission and 58, having a subsequent admission. Among the first episode individuals, 22% experienced no relapse at follow-up, 35% had one or

more, and 43% remained impaired throughout. In contrast, those with previous admissions, 10% had no impairment, and no further admissions at follow-up, 29% had multiple episodes, and 60% remained impaired with no return to normality (Mantel-Haenszel $\chi^2 = 4.194$; $df = 1$; $p = 0.041$). Even more striking was the time spent in hospital during the 5-year follow-up was 26.2 weeks for the first admission subgroup compared to 76.2 weeks for those with previous admissions. Ram et al. (1992) conducted a review of first admission studies, which had examined the natural course of schizophrenia. Three types of studies were included in this review: statistical reports dating from the pre-neuroleptic era, long term retrospective studies, and prospectively designed cohort studies.

1.7.1 Pre-neuroleptic period

Ram et al. (1992) located fifteen studies carried out in North America and Europe that described the follow-up status of individuals diagnosed with schizophrenia prior to the introduction of neuroleptic medication (see Table 1.5). The analyses contained in these studies were based on routinely collected hospital data concerning first admission, re-admission, discharge and death. Comparison of discharge rates is complicated by differing definitions of discharge. For example, in the New York State system, patients were not counted as discharged if they were transferred to a private inpatient facility, or to a state operated outpatient facility. However if they were transferred to a private outpatient facility they were counted as discharged. Therefore, the data on discharge from these early papers should be viewed as an estimate rather than a true picture. However a striking feature of these findings is the increase

in discharge rates beginning in the 1940's, which is at least one decade before the introduction of neuroleptics, illustrated by comparing Rosanoff (1914) and Fuller (1930). In addition, Israel and Johnson (1956) reported an incremental increase in the 10-year incremental discharge rate between 1913 and 1952. Three studies (McWalter et al., 1961; Achte & Apo, 1967; and Hurley & Conwell, 1967) investigated the effect of neuroleptic introduction on discharge patterns during the 1950's. McWalter et al., (1961) and Achte and Apo (1967) found no significant differences in discharge rates. Hurley and Conwell (1967) did find a significant increase in discharge rates after the introduction of neuroleptics. All these findings are, however, difficult to interpret because many treatment changes occurred simultaneously. Before the 1940's problems such as overcrowding, and improvements in treatment philosophy affected discharge rates. Furthermore, some of those included, as samples after the introduction of neuroleptics were not offered these drugs. One further obvious limitation is the reliability and criteria used by clinicians to make diagnosis, although Fuller (1930) noted that increases in discharge rates applied to individuals with a range of psychotic conditions. Despite these limitations, there are some consistent findings on prognosis and outcome. Rupp and Fletcher (1940) noted that good outcome was associated with shorter duration of illness prior to treatment, and longer initial admission was related to poorer outcome. Lehrman (1960) reanalysed the data of Malzberg (1952a,b) and found younger age and shorter duration of past illness predicted a better outcome. Locke (1962) found being married, prior education and employment predicted discharge from hospital.

Table 1.5 Pre-neuroleptic era follow-up studies (From Ram et al., 1992)

Study (n)	Duration (years)	Findings (%) Dead	Discharged	In-patient
Rosanoff (1914) 169	5	13.6	23.1	58.6
Fuller (1930) 1,200	15	25	35.3	38.4
Rupp & Fletcher (1930) 641	4.5 to 10	13.9	27.5	53.5
Malzberg (1952a,b) 2,940	5-6	5.6	61.9	43.9
Harris & Lubin (1952) 289	18	n/a	43.5	n/a
Isreal & Johnson (1956) 4,254	1913-22 1923-32 1933-42 1943-52	n/a	54.9 54.4 61.2 72.5	n/a
Marlzberg (1953) 3,180	3	4	59.3	n/a
Shepherd (1957)				
79	5	6.3	46.8	n/a
58	5	1.7	56.8	
McWalter et al (1961)*				
129	3	n/a	21	n/a
93	3		16	
Locke (1962) 5,781	5	1.6	70	22
Peterson & Olson (1964) 177	5	n/a	76	24
Achte (1967) 275	3 to 5	1	57	39
Achte & Apo (1967)* 285	3 to 5	>1	49	47
Hurley & Conwell (1967)*				
Two groups 1954	1		61.3 to 91.7	
1960	1		74.3 to 91.8	
Beck (1968) 84	25 to 35	n/a	35.7	64.3

NOTE- n/a = not available

- These studies specifically examined the question of improvement in outcome of schizophrenia after the introduction of neuroleptics

1.7.2 Retrospective studies

Ram et al. (1992) presented data on seven retrospective studies. These are summarised in Table 1.6 below. These studies employ case record strategies in order to understand short and long-term outcome patterns and their predictors. One advantage of this kind of study is that the selection factors, which apply in drug trials, which potentially limit the generalisability of findings, are avoided. However, this research suffers from sampling and reliability limitations that affect the inferences that can be drawn. For example, Ciompi (1980a,b) identified consecutive admissions with schizophrenia between 1900 and 1962. The subsequent variability in intake, treatment experiences, and length of follow-up (median = 37 years), means that the sample does not fit the usual criteria for a cohort. In the same study attrition was a problem, with only 289 (18%) of the original 1,682 identified individuals were reassessed. Furthermore, although information from medical records and key informants was used in these studies, in many cases the reconstruction was based on the retrospective interview with the individual (for example Bleuler, 1978). Despite these problems retrospective studies do reveal that there is heterogeneity in the outcome of schizophrenia, and a number of prognostic indicators associated with better or worse outcome. Better pre-morbid social, familial, and occupational adaptation, acute onset, and shorter duration of first hospitalisation all predicted better post treatment functioning. These findings suggest that a high-risk group of individuals at first admission will have persistent psychosocial difficulties predating the onset of illness.

Table 1.6 Long-term follow-back studies (From Ram et al., 1992)

Study	Subjects (n)	Follow-up (years)	Outcome (%)
Bland & Orn (1978)	43	14	Mortality = 7 Psychiatric Condition: Recovered = 21 Other = 79 Social Adjustment: Good = 37 Fair = 28 Poor & other = 35
Bland et al. (1976, 1978)	88	10	Mortality = 13.6 Psychiatric Condition: Recovered = 58 Other = 42 Social Adjustment: Good = 35.2
Salokangas (1983)	161	7.5/ 8.5	No symptoms = 26 Neurotic symptoms = 21 Mild psychotic symptoms = 29 Continuous symptoms = 24
Stephens (1978)	206	<10	Recovered = 22 Improved = 51 Unimproved = 26
	143	>10	Recovered = 24 Improved = 45 Unimproved = 30
Bleuler (1911, 1950)	68	20	Recovered = 23 Mild = 20 Moderate = 19 Severe = 15
Ciompi (1980a,b)	289	36.9	Global Outcome: Remission = 27 Minor residual = 22 Unfavourable = 42 Social Outcome: In hospital = 44 Community residence = 17 Alone/ family = 39
Wing (1966)	111	5	Relapse = 48 Moderate symptoms = 28 Disturbed in 1st year only = 35 Favourable functioning = 49 Employment: Male = 63 Female = 69

Ciompi (1980a) classified 228 cases according to type of onset (acute versus insidious), interim course (undulating versus non-undulating), and end-state (recovery/ mild versus moderate/ severe). Log linear analysis of this three-way classification revealed a statistically significant bivariate association for each pair of variables. However, type of onset had no impact on end-state beyond its effect on interim course. In addition, the interaction between type of onset and interim course on end-state was not significant, implying that the significant relationship between interim course and end-state was not moderated by type of onset.

1.7.3 Prospective studies

Prospective studies have attempted to provide a solution to the methodological problems apparent in early studies of the course and outcome of schizophrenia. The studies reviewed here have sought to identify participants at first admission, and include them according to strict diagnostic criteria obtained through a combination of structured clinical interview and information from medical records and key informants. However, despite the advantages of prospective studies, these investigations also have limitations. Follow-up periods have often been variable making comparison difficult. Participant numbers have often been small, thereby limiting the power of the study to predict course and outcome from pre-morbid and initial clinical findings. In addition, as prospective studies identify participants at first hospitalisation, sample composition may be compromised. First, such a cohort may not be representative of all first episodes of psychosis. Second, co-morbidity with alcohol and drug use is often a reason for exclusion. Meuser et

al, (1990) suggest that first episode schizophrenia is associated with significant problems of substance and alcohol use. Third, potential participants who do not meet diagnostic criteria for schizophrenia at first admission are excluded, with the exception of Beiser et al. (1988). Individuals who are given other diagnoses may subsequently develop a clinical picture consistent with schizophrenia. Conversely, individuals meeting criteria for schizophrenia at study entry, whose later clinical picture is consistent with affective disorder, are included. For example, Schubart et al. (1986) found 8 of their initial cohort of 70 first episode participants were subsequently found to have affective disorder.

The Scottish Schizophrenia Research Group (1989a,b) found that compared to the Research Diagnostic Criteria (RDC; Spitzer, Endicott & Robins, 1977, 1978) and the International Classification of Diseases (ICD-9; WHO, 1978b), Feighner Criteria (Feighner et al., 1972) tended to predict poorer outcome. This is because Feighner criteria for Schizophrenia require a 6-month duration of illness. Furthermore, Beiser et al. (1988, 1989) examined a cohort of 175 individuals experiencing a first episode of functional psychosis. Participants were assigned diagnoses according to DSM-III (APA, 1980), ICD-9 (WHO, 1978b), RDC (Spitzer, Endicott, & Robins, 1977, 1978), and Feighner (1972) diagnoses. Participants were followed up at 9 and 18-months. Attrition was high, with 120 seen at 9-months and 129 at 18-months. Diagnostic stability according to DSM-III, ICD-9, RDC and Feighner criteria was examined at both 9 and 18-months, and outcome assessed at 18-months. ICD-9 had the broadest definition of schizophrenia, generating twice as many diagnoses of

schizophrenia as DSM-III, and almost three times as many as the Feighner criteria. The diagnostic criteria employed to classify schizophrenia were strongly associated with recovery status at 9-months. Those diagnosed to ICD-9 criteria (broad definition) were more likely to recover and no longer require a diagnosis, than those meeting either DSM-III or Feighner criteria (narrow definition). Shepherd et al. (1989) identified a cohort of 121 individuals with schizophrenia (Schneiderian Criteria; Schneider, 1959), of whom 49 were first admissions. The clinical outcome of first admissions were assessed in terms of mortality and attrition, readmissions to hospital, psychotic symptoms present during the interim and at follow-up at five-years, and depressive symptoms present during the interim and follow-up. There was no attrition in the first episode group, and one had died at follow-up. A total of 55% of patients were readmitted during the follow-up period. The mean duration of hospital admission was 26-weeks, compared with 53-weeks for the whole cohort. Females did better than males; 19% of males spent more than a year in hospital compared to 4% of females. In terms of course of illness, four groups were identified; 22% were found to have had no further episodes and no impairment at follow-up, 35% had several episodes with minimal impairment between episodes, 8% were impaired after their first episode, and had subsequent exacerbations, whilst 35% had increasing impairment with each episode. Very clear differences exist between Shepherd et als' (1989) and Beiser et als' (1988) studies underlining the effects of diagnostic criteria used by investigators to include participants. This becomes an extremely important consideration when interpreting the findings on prognosis in schizophrenia reported by prospective studies. These are summarised in Table 1.7 below.

Three prospective studies, have included a long-term placebo-controlled trial of neuroleptic medication (May et al., 1976a,b; Kane et al., 1982; Scottish Schizophrenia Research Group, 1989a,b). These studies are considered in Chapter 2.

With regards to clinical features at admission, longer duration of illness prior to admission, poor pre-morbid adjustment, insidious onset was found to predict poorer outcome (Rabiner et al. 1986; Wiersma et al. 1998; Robinson et al. 1999). Two studies (Salokangas & Stengard, 1990; Thara et al, 1994) found being male was associated with poorer outcome. Affective symptoms at entry were not found to have a bearing on outcome in two studies (Gift et al., 1980; House, 1987). Lieberman et al. (1989) found that abnormal brain morphology on MRI was predictive of poorer course, however this finding was not replicated in Robinson et als' (1999) study.

The World Health Organisation (1978a) reported on follow-up information from the International Pilot Study of Schizophrenia on predictors of course and outcome amongst 906 participants across nine centres over two-years. This study examined the relationship of sociodemographic characteristics, past history characteristics and characteristics of the initial episode of illness in relation to outcome. In terms of sociodemographic data, male sex, social isolation and study centre predicted poorer outcome.

Table 1.7 Prospective follow-up studies of the course and outcome of schizophrenia.

Study	Subjects	Follow-up	Results
Gift et al. (1980)	227 1st Admissions Schneiderian	2-years	Initial psychotic symptoms correlated with most outcome measures.
Schubart et al. (1986), Biehl et al. (1986)	70 ICD-9 Schizophrenia	5-years	Level of disability at entry predicted level of disability at outcome.
Rabiner et al. (1986)	36 RDC schizophrenia	1-year	Longer duration of illness and pre-morbid asociality before admission predicted poorer outcome.
House (1987)	56 CATEGO Schizophrenia	1-year	Depression not associated with neuroleptic drugs.
Beiser et al. (1988, 1989)	63 ICD-9, DSM-III, RDC & Feighner schizophrenia	18-months	ICD-9 and RDC recognised relapsing schizophrenia. Few friends and negative symptoms predicted poorer outcome.
Lieberman et al. (1989)	45 RDC schizophrenia & schizoaffective	3-years	Abnormal brain morphology on MRI predicted slower and less complete response to treatment.
Shepherd et al. (1989)	49	5-years	Duration of admission at entry, younger age of onset predicted poorer outcome in terms of duration of readmissions.
Salokangas & Stengard (1990)	227 DSM-III schizophrenia	2-years	Males did more poorly on all psychosis dimensions.
Carpenter and Strauss (1991)	53 ICD-9 schizophrenia	11-years	More social contact, more stable relationships, and greater distress at Entry predicted better outcome.
Thara et al. (1994)	81 Feighner Schizophrenia	10-years	Being male, having negative symptoms and religious/ grandiose delusions predicted poorer outcome.
Wiersma et al. (1998)	82 ICD-9 Schizophrenia	15-years	Insidious onset/ longer duration of untreated illness predicted poorer course
Robinson et al (1999)	104 RDC schizophrenia	5-years	Early adolescent poor pre-morbid adjustment predicted poor outcome.

The Aarhus and Washington centres were predictive of longer episodes of illness, whilst Ibadan was associated with shorter duration. In terms of past history, the presence of a precipitating stressor (physical, psychological or

environmental) to the first episode was predictive of better response to treatment and more favourable outcome. This finding appears consistent with those of Wiersma et als' (1998) Aarhus cohort of the same study at 15-years who found that insidious onset was associated with poorer outcome. In terms of characteristics at the episode of inclusion, the duration of illness prior to admission was the strongest predictor of poorer outcome. Secondary to this finding, social isolation, the presence of derealisation, history of past psychiatric treatment and history of behavioural symptoms were also predictive of poorer outcome. Carpenter and Strauss (1991) describe data from the Washington cohort of the International Pilot Study of Schizophrenia, which followed up individuals at two, five then eleven years, after the episode of inclusion. The original sample included a cohort of 131 individuals who were included if they had been admitted to hospital, were aged between 15 and 44 years old, and had at least one psychotic symptom. Subjects were excluded if there was evidence of an organic, drug related or alcohol disorder, and if there was evidence of continuous psychosis for 3-years or more. Of this original sample 53 patients were interviewed at 11 years, 40 (75%) of whom met diagnostic criteria for Schizophrenia. The representativeness of the 11-year follow-up sample was evaluated across 29 demographic, clinical, familial, and prognostic variables. Statistically significant differences (uncorrected for multiple comparisons) were found for only four variables; the group was more likely to be male, from a lower socio-economic status, have a longer duration of illness prior to initial research evaluation, and be rated as having adequate relationships prior to illness. Outcome was evaluated across four dimensions including duration of hospitalisation in the previous year,

frequency of social contacts, time spent employed during the last year, and symptom severity during the last month.

Prognostic factors were examined using correlations. Individuals with more frequent social contacts and more stable intimate relationships prior to study entry, showed a more favourable outcome with respect to frequency of social contacts, employment status and symptom severity. In addition the greater the severity of subjective distress at entry, the better the 11 year outcome with respect to social contacts and symptom severity. It was apparent from this study that the early deterioration among many of the cohort stabilised by two years and 75% of individuals showed no change in relapse, social contacts, occupational functioning, and residual symptoms between two and eleven years. The similarity in outcome at 2, 5 and 11 years of this cohort show no evidence of a disorder of progressive deterioration. Indeed, amongst those individuals struggling at two years, one third showed improvement at eleven years.

The findings of Carpenter and Strauss (1991) have been supported by two prospective studies; the Madras first episode schizophrenia study (Thara et al., 1994; Eaton et al., 1995) and the Nottingham Centre cohort (Harrison et al., 1996) of the first episode schizophrenic cohort of the Determinants of Outcome Study of Mental Disorders (DOSMD; Jablensky et al., 1992, Mason et al., 1996). Jablensky et al. (1992) reported an average of 39% of individuals with one psychotic episode and only mild or no impairment after two years in developed countries. In the UK centre, Mason et al. (1996) reported that 82%

had relapsed within thirteen years and the majority (75%) by four years. Thara et al. (1994) followed up 90 consecutive patients meeting Feighner criteria for schizophrenia. Seventy-six of the 81 patients who were alive at the end of 10-years were followed up, resulting in a follow-up rate of 94% (84% of the original sample). During the follow-up period, 4 patients had committed suicide, 5 had died due to physical illness, 4 were untraceable, and 1 refused consent. Outcome data were obtained through annual administrations of the Present State Examination (PSE; Wing et al., 1974). Five patterns of outcome were defined (see Table 1.8 below). It was striking that the pattern of illness course was good in 67% of cases, that is those who either made a complete recovery, those who did not relapse but had some residual symptoms or those who did relapse but made complete recoveries between episodes. Indeed, nearly 60% of the cohort had been able to retain employment at the end of 10-years.

Table 1.8 Patterns of Course: The Madras Longitudinal Study

Pattern	Frequency	Time spent in Psychosis (months)
Complete recovery without relapse	11	10
No relapses, but with residual symptoms	2	9
One or more relapses with complete remissions	37	16
One or more relapses but with residual symptoms	21	37
Continuously psychotic	5	89

Linear regression analysis was used to examine predictors of duration of time spent in psychosis. Being female and having an earlier age of onset was more predictive of spending fewer months in psychosis. Four syndrome scores on the PSE at entry to the study predicted a statistically significant increase in the percentage of time spent in psychosis: flat affect, self-neglect, religious or grandiose delusions, and sub-cultural delusions and hallucinations. The presence of hypomania and non-specific psychosis at intake predicted a lower percentage of months in psychosis during follow-up. The *R* for the model was 0.45, indicating that more than 20% of the variance in the percentage of months in psychosis is predicted by variables at intake. The finding that older age of onset was predictive of a greater proportion of time spent in psychosis is an interesting one, which has not been reported elsewhere. Thara et al. (1994) speculated that this factor might reflect the influence of social and cultural factors present in Indian settings, specifically the older individual is more likely to be married, having to support a family and hold a job and consequently may be exposed to more life stressors than a younger individual.

1.8 Summary and Conclusions

Whilst psychosis has long been recognised as a potentially devastating human experience, debate has continued as to the role of organic, psychological, and environmental factors in its development, expression, and course. Early precursors to modern conceptualisations (e.g. Kraepelin, 1896; Bleuler, 1911) differed markedly in their views regarding course and outcome. On the one hand, Kraepelin saw the disorder as having a progressively deteriorating course, whilst Bleuler saw course and outcome as heterogeneous. Furthermore

whilst Kraepelin brought a descriptive approach to psychopathology and speculated on the organic basis of schizophrenia, Bleuler emphasised theory as a means of describing and defining schizophrenia.

The development of classification systems of schizophrenia has become relevant to this ongoing debate concerning aetiology, course and prognosis. For example, early classification systems saw all mental disorders as reactions to environmental causes. Later diagnostic systems aimed to strengthen operational criteria for differential diagnosis emphasising particular factors such as presence and nature of psychotic symptoms (e.g. Schneider, 1959; Spitzer & Endicott, 1978; DSM-III-R, 1987), impact on functioning (e.g. DSM-IV, 1994), the duration of illness (e.g. Feighner et al., 1972) and the role of affect (e.g. Feighner et al., 1972; DSM-IV, 1994). Attempts to develop reliable criteria for diagnosing schizophrenia and differentiating it from other disorders involving psychotic symptoms have lead to the development of diagnostic systems (e.g. DSM-IV, ICD-10), which emphasise the description of psychopathology but neglect theoretical conceptualisations of aetiology.

Therefore, whilst the evolution of diagnostic systems since Bleuler's (1911) description and classification of schizophrenia have improved the reliability of diagnosis (Tsuang et al., 2000). As was pointed out, diagnostic systems such as DSM and ICD have become divorced from conceptualisations of the aetiology of schizophrenia. At the same time they emphasise the presence of positive psychotic symptoms and impact on day to day functioning. However, Bell and colleagues (1998) showed that the duration of illness and the absence

of affective symptoms correctly classified 97% of individuals with first episode psychosis as having DSM-III-R schizophrenia, and also correctly identified 97% of those who did not have schizophrenia. Inclusion of DSM-III-R's psychosis criteria did not improve prediction. Serretti et al (1996) found that the psychopathology of participants with schizophrenia and bipolar disorder overlapped on the disorganisation factor. Crow (1990, 1991, 1998b) proposed that schizophrenia, schizoaffective disorder, and affective illnesses exist along the same continuum, rejecting the concept of distinct disease entities. Indeed a variety of evidence demonstrates that psychosis is not specific to schizophrenia, that Schneiderian symptoms occur in other disorders (Peralta & Cuesta, 1998), and indeed measures of psychosis do not differentiate schizophrenia from other disorders.

These diagnostic debates are also relevant to sampling processes involved in studies of course and outcome. Adopting diagnostic systems which emphasise illness chronicity result in findings that indicate schizophrenia has a negative deteriorating course, whilst diagnoses made on the cross-sectional presence of psychotic symptoms, course and outcome is heterogeneous. Studies examining the course and outcome of schizophrenia were reviewed. These studies included those conducted prior to the introduction to neuroleptics, retrospective studies and prospective studies. All of these studies suffer from the methodological problems arising from the sampling procedures associated with diagnostic procedures. Prospective studies, reviewed in Section 1.7.3 have compensated for sampling biases inherent in retrospective studies, reviewed in Section 1.7.2, by selecting participants at their first episode.

Despite this, prospective studies do have limitations including small sample sizes, exclusion of first admissions who later develop schizophrenia, and exclusion of participants due to drug and alcohol co-morbidity.

Notwithstanding the methodological shortcomings and variations in diagnostic criteria employed, the outcome of schizophrenia is heterogeneous and the disorder does not appear to be a unitary one (e.g. Carpenter and Strauss, 1991; Thara et al., 1994; Eaton et al., 1995; Harrison et al., 1996; Mason et al., 1996). Poor outcome is however associated with a longer duration of untreated illness, poor pre-morbid adjustment, and higher levels of social isolation. Indeed longer duration of untreated illness is associated with poorer outcome and increased risk of relapse for pharmacological treatments (e.g. Crow et al., 1986; Robinson et al., 1999). In Chapter 2 will now turn to the examination of the course of schizophrenia, with particular reference to relapse and it's prevention.

Chapter 2

Relapse and relapse prevention in schizophrenia

2.1 Relapse

Little is known about the process of natural relapse in schizophrenia because most of the data has come from either treatment outcome trials, or studies which have included some treatment (Zubin et al., 1992). In general, the term relapse is used to refer to a deterioration or recurrence of positive rather than negative features of illness. However the boundaries of relapse in schizophrenia are not entirely clear. In fact, relapse is a relative term and must take into account the following factors: the individual's condition before the original onset of their condition, their level of functioning before the present episode, the severity of relapse in terms of symptom severity, duration and interference with personal functioning, and the appearance of new symptoms and behaviour patterns. Relapses may also be defined as the reappearance of psychotic symptoms in an individual who had been free of active phase or residual symptoms, and the exacerbation of persisting positive symptoms. Therefore operational definitions of remission and relapse vary across studies. For example, Shepherd et al. (1989) defined remission as a full clinical recovery and relapse as readmission. They found that 22% of their sample were relapse free at five years, 35% relapsed but recovered with no impairment. In contrast Crow et al. (1986) defined relapse as either the development of psychotic features or a deterioration of mental state described by a relative or clinician, death, or an "uncharacteristic non co-operation". Using these criteria 35% of the sample remained relapse free at two years. Thara et al (1994) and Eaton et al. (1998) reported on the rates of remission and relapse from the Madras Longitudinal Study. A total of 90 patients were followed up at monthly intervals using the Interim Follow-up Schedule (IFS),

which recorded symptoms of delusions, hallucinations, thought disorder, psychomotor disorder, flat affect, apathy, social withdrawal, odd behaviour, self neglect, anxiety, manic symptoms and depressive symptoms. A psychotic episode was defined as the presence during the month of any of the following IFS symptoms: hallucinations, thought disorder, delusions, or a combination of extreme psychomotor disorder combined with at least one other IFS symptom. A remission was defined as a period of at least three consecutive months without psychotic symptoms. Thara et al (1994) found 64% (n=58) of their sample relapsed over the 10-year follow-up. Of these 37 (41%) had one or more relapses, with complete remission between acute phases, and 21 (23%) had incomplete remissions between phases. Logistic Regression analysis revealed that age of onset, and duration of psychosis prior to treatment were variables, which were both, associated with a greater odds of having a poorer course of illness (relapsing or continuous psychosis). Specifically poorer course was associated with an age of onset above 25-years old, and a longer period of illness prior to initiation of treatment. In a further analysis of this data using Proportional Hazard Regression Analyses, Eaton et al. (1998) found that the prescription of neuroleptic medication accelerated the time to remission at the first episode, but not for the second episode. In addition, withdrawal of, or non-adherence with neuroleptics was predictive of relapse.

Wiersma and colleagues (1998) identified a cohort of 82 individuals in two geographically circumscribed areas of the Netherlands. This cohort was entered to the study meeting criteria for first episode functional non-affective

psychoses (International Classification of Diseases- 9th Edition). Participants were followed up for a period of 15-years. Outcome was examined in terms of relapse, non-psychotic episodes, and full or partial remission. A relapse was defined as a discrete period of symptomatology characterised by overt psychotic signs and symptoms of hallucinations, delusions, cognitive disorganisation, marked psychomotor disturbance, or grossly inappropriate behaviour. Such an episode must have been preceded by at least 30-days during which the individual had no psychotic symptoms. Non-psychotic episodes refer to periods without psychotic signs, but with neurotic or negative symptoms. Complete remission was defined as being symptom free, combined with return of pre-morbid personality. A remission or partial remission could not be rated as present unless it had lasted more than 30-days. A total of 68% of participants experienced one relapse during the follow-up period, 58% experienced two, 49% three, and 47% experienced four relapses. Most relapses occurred between one or two years following remission from the previous episode, although there was a trend for the duration of remission to increase between episodes. Taking into account both affective and non-affective relapses, 43% of participants relapsed within 1-year, a further 12% by 2-years, and 8, 7, and 2% in the subsequent 3-years. It is clear from these findings that a relapsing course of illness is apparent in the first 5-years following the first episode. Wiersma et al. (1998) did not analyse predictors of relapse itself. However, using Cox Regression, duration of first and subsequent psychotic episodes was predicted by two variables: type of onset and mental health treatment. Those with a longer duration of psychosis of first and subsequent episodes, were almost twice as likely to have a disorder

characterised by insidious onset (Hazard ratio = 1.88, p = 0.07), and were more than twice as likely to experience delay before initiation of active treatment (Hazard Ratio = 2.33, $p < 0.01$).

2.2 Prevention of Relapse and Neuroleptic Medication

Ohmori et al. (1999) conducted a retrospective study of psychotic relapse and maintenance neuroleptic therapy. These investigators identified fifty outpatients with ICD-9 paranoid schizophrenia who had been on maintenance neuroleptic therapy for a period of at least 15-years since their first episode. Relapse rates during follow-up were as follows; 52% at two years, 76% at five years, 86% at ten years, and 90% at fifteen years. A total of 207 relapses were recorded for the 50 participants over the follow-up period. Of this total 74 (35.7%) occurred when participants were off medication, and in 25 of these relapses the participant had been without medication for more than twelve months. Relapses without medication were more likely to occur in the first five years of follow-up, however the incidence of relapse whilst off medication significantly reduced during the subsequent two 5-year epochs. On the other hand the incidence of relapse whilst on medication did not change over time. Ohmori et al. (1999) also found significant positive correlations between Haloperidol Equivalent Dosage and relapse rate.

The Northwick Park First Episode Study (Johnstone et al., 1986) examined 120 individuals with a first episode of schizophrenia in a study of maintenance neuroleptic treatment. Of a total of 462 referrals, 253 were suitable for inclusion, 116 did not consent to enter the trial and 17 were never well enough

to be discharged from hospital. All participants were discharged on one of five active antipsychotic medications: Fluphenthixol (IM, 40mg/month), Chlorpromazine (Oral, 200mg/ day), Haloperidol (Oral, 3mg/day), Pimozide (Oral, 4mg/day) and Trifluoperazine (Oral, 5mg/day). Attending psychiatrists were instructed to prescribe only one of these medications at or above the stated minimum dose. No upper limit on dosage was prescribed; this was at the discretion of the attending psychiatrist. Other psychotropic medication could be prescribed in addition to the antipsychotic medication once this medication had been initiated. For the first month following discharge all participants remained on their active antipsychotic medication. Any readmissions during this period were considered a continuation of the index psychotic episode. Thereafter participants who completed this one-month phase without readmission were then randomly assigned to receive either placebo or active medication. Participants were tailed into placebo, receiving half-strength matched medication in the second month and matched placebo thereafter. Again the participants' dosages could be changed at any point by the attending psychiatrist, but they were not allowed to fall below the stated minimum dosage. Relapse was determined by the responsible clinician and confirmed by one of the study team. Relapse was defined as readmission to psychiatric care for any reason; readmission considered necessary but not possible; and active antipsychotic medication considered by the attending psychiatrist to become essential due to features of imminent relapse. Crow et al., (1986) found that of those on maintenance neuroleptic treatment, 25 out of 54 (46%) relapsed, and of those on placebo, 41 out of 66 (62%) relapsed by 24 months. These results are illustrated in Table 2.1 below. It was not possible,

on the basis of length of hospital stay or demographic features to predict those who remained well on placebo. The authors concluded that it was, therefore, not possible to predict which individuals respond to placebo. However, caution is required in interpreting these results. Key to the design of the Northwick Park First Episode Study is the objective to define those clinical features, which predict response to antipsychotic medication. The logic of using of broad demographic and psychiatric treatment variables to predict a group of patients who respond to a placebo treatment seems flawed. It would, however, seem reasonable to suggest that those who remain well without active medication may have access to internal or external resources, which facilitate recovery and promote relapse prevention. No attempt was made in this study to examine such variables in relation to outcome. In addition, there was a remarkable stabilisation in relapse rate after one year amongst the group receiving placebo medication; 37% remained relapse free at one year compared to 30% at two years compared to the active group of whom 62% remained well at one year, and 42% at two years. According to the figures presented by Crow et al., (1986) 33 participants remained well at 12 months on active medication, versus 24 participants on placebo. A total of 10 (30%) of participants on active medication relapsed between 12 and 24 months compared to 4 (17%) participants maintained on placebo.

Johnstone et al., (1990) followed up this study sample and those with a first episode of schizophrenia who were excluded from the original placebo controlled trial (Crow et al., 1986). A total of 252 individuals were assessed in terms of occupational outcome and the number of days spent as an in-patient

at two years or at the conclusion of the study. Occupational outcome was classified as (a) higher, (b) the same, (c) lower, and (d) no occupation. The number of days spent as an in-patient was dichotomised at 100 days: those spending less than 100 days were classified as a "good" outcome, and those spending greater than 100 days a "poor" outcome.

Table 2.1 Northwick Park Study of First Episodes of Schizophrenia

Relapse outcome at 6, 12, 18, and 24 months

Group	Entered N	Relapsed N (%)	Relapse free N (%) 6	12	18	24
DUP <1 year						
Active	31	10 (32)	25 (80)	25 (80)	22 (71)	18 (59)
Placebo	51	26 (51)	39 (66)	23 (45)	21 (42)	21 (42)
Total	82	36 (44)	64 (72)	48 (59)	43 (54)	39 (48)
DUP >1 year						
Active	22	15 (75)	17 (76)	7 (33)	6 (26)	4 (18)
Placebo	13	13 (100)	3 (23)	1 (8)	-	-
Total	35	28 (80)	20 (55)	8 (23)	6 (14)	4 (10)
Not known						
Active	1	0	-	-	-	-
Placebo	2	2	-	-	-	-
Total	3	2	-	-	-	-
Whole Group						
Active	54	25 (46)	43 (79)	33 (62)	29 (54)	23 (42)
Placebo	66	41 (62)	38 (57)	24 (37)	22 (33)	20 (30)
Total	120	66 (55)	81 (67)	57 (48)	51 (42)	43 (35)

Predictors of outcome were sought from a number of measures; the Past History and Socio-demographic Schedule (PHSD), Disability Assessment

Schedule (DAS), Psychological Impairments Rating Schedule (PIRS; Jablensky et al., 1980), and the Disturbed Behaviour Rating (DBR; Johnstone et al., 1986), and Neurological Soft Signs and Neuropsychological tests. Johnstone et al., (1990) found a variety of variables were predictive of occupational and treatment outcome. There was a strong association between poor outcome and relapse/ readmission, greater duration of illness prior to treatment, social withdrawal/ inactivity, and with more neurological soft signs. Active antipsychotic treatment was associated with reduced relapse/ readmission. Despite this association, placebo medication was associated with improved occupational outcome. Other predictors of good outcome were relatively short duration of pre-treatment illness, and the presence of 'special assets' as measured by the PIRS. "Special assets" refers to factors such as 'social charm and presence'. The use of χ^2 statistics to measure the associations between baseline and outcome variables as predictors makes interpretation of these results difficult. However, the findings strongly suggest that pre-treatment duration of illness was a particularly strong predictor of outcome. In addition, it was apparent that the benefits associated with active antipsychotic medication, that is reduced relapse and readmission, exact a cost in terms of occupational outcome.

The Scottish first episode schizophrenia study (Scottish Schizophrenia Research Group, 1989a,b) examined 49 individuals with a first episode of schizophrenia, and described their outcome at 2-years. During their acute episode, participants had responded either pimozide or oral fluphenthixol. At remission participants were randomised in a double blind study of once

weekly pimozide versus intramuscular fluphenthixol decanoate maintenance therapy. Those who had remained relapse free at one year were then randomised to a double blind study of either active medication (pimozide or fluphenthixol decanoate) or placebo medication. A total of fifteen participants successfully completed the first year double blind study and proceeded to the second year. Eight participants received active medication and none were readmitted; seven received placebo and four (57%) were readmitted. Outcome at two years was categorised as good or poor. Good outcome was defined as no readmissions and no positive or negative symptoms at 24-months. Poor outcome was defined as having a readmission or by the presence of positive or negative symptoms. Information was obtained for 38 participants: 14 (37%) had a good outcome, and 24 (63%) had a poor outcome. Of the good outcome group 36% had received continuous medication over the two years were rated as having a good outcome, whilst 32% of the group who were rated as having a poor outcome had received continuous medication. Poor outcome was associated with being male and having negative symptoms at entry. Whilst the nature of the study's design and the small numbers included make these results difficult to interpret, being on continuous medication throughout the first two years following an initial episode of schizophrenia did not confer more a positive outcome in terms of remission and stabilisation in the community.

The Northwick Park Functional Psychosis Study (Johnstone et al, 1988) selected 120 patients from the consecutive admissions of 326 individuals with a definite or possible psychotic illness. These patients were entered into a four-week trial, which compared the treatment efficacy of 1) lithium + placebo

pimozide; 2) pimozide + placebo lithium; 3) lithium + pimozide and 4) placebo lithium + placebo pimozide in acute functional psychotic episodes to which no diagnostic classification had been applied. At the end of the trial period a total of 56 patients met criteria for recovery and were therefore eligible for the continuation phase of the study. Of the 56 patients achieving criteria for recovery, 30 were entered into the maintenance phase of the trial, which involved continuation of one of the four trial phase treatments. Results were calculated in terms of survival to first relapse. Patients on placebo pimozide survived for significantly less time than patients on active pimozide. Whilst this is in line with previous research, it is interesting to note that those patients who were maintained on placebo neuroleptic, had achieved defined recovery during the acute phase of the trial whilst on placebo.

Robinson et al (1999) conducted a long-term study of first episode schizophrenia and schizoaffective disorder. The sample included 104 participants who were followed up for a period of five years following their initial response to treatment of their first episode. At entry to the study, participants were diagnosed according to Research Diagnostic Criteria (Spitzer et al., 1977) using the Schedule for Affective Disorders and Schizophrenia (Endicott & Spitzer, 1978). Participants had been ill for an extended period before study entry: the first psychotic symptoms began 16 months prior to study entry. Participants were treated openly according to a standard algorithm, progressing from one phase of the algorithm to the next until they met criteria for treatment response. At the end of the 5-year follow-up, the cumulative rate of relapse for the 104 participants was 81.9%. Of those

participants, 63 recovered after the first relapse. The cumulative rate for second relapse was 78.0%. Of this group, 20 made a recovery after a second relapse. Amongst this group, 86.2% relapsed for a third time. A survival analysis of relapse using medication status as a time dependent covariate indicated that the risk for a first and second relapse was almost 5 times greater when not taking medication than when taking medication. Survival analysis for third relapse produced high but unstable estimates because of the small number of participants. Thirteen stable participants not on medication dropped out of the study. When these participants were included in the survival analysis, the effect of antipsychotic medication on relapse remained significant, with a risk of first relapse 3 times greater for those not taking medication. This relationship between discontinuation of medication and relapse may have been an artefact of discontinuation as a result of the relapse process itself (e.g. loss of insight). This was examined in subsequent analyses by varying the time lag between stopping medication and relapse. The effect for this relationship remained significant using 14, 28 and 56-day time lags, thus indicating that discontinuation was unlikely to be a manifestation of relapse itself. In a further analysis of predictors of relapse, medication status was entered as a control variable. Robinson et al., (1999) examined a range of predictor variables including pre-morbid adjustment, baseline positive and negative symptomatology, obstetric complications, baseline depression, neuropsychological performance, and brain abnormalities identified using Magnetic Resonance Imaging. Early adolescent pre-morbid adjustment was the only variable significantly related to first relapse independent of medication status. Early pre-morbid social isolation and poor adaptation to

school were particular characteristics of this measure. Thus specific behaviours present long before the expression of overt psychotic symptoms predict some aspects of the course of the disorder once it develops. This finding replicates that of Kane and colleagues (1982) who also examined a remitted first episode cohort with schizophrenia treated with either Fluphenazine or placebo. Unlike Crow et al., (1986), Robinson and colleagues did not find that duration of untreated illness was predictive of outcome. However the mean duration of untreated illness was 2.8 months in Crow et als.' (1986) study versus 16.0 months in Robinson et als.' cohort. This would indicate that (1) the two groups are not the same, and (2) Robinson et als' cohort are likely to be similar to Crow et als.' poor prognosis subgroup. Therefore there is some limitation to the generalisability of the Robinson et al., (1999) findings to the wider population of individuals with a first episode of schizophrenia.

Examination of the outcome of prospective first episode studies, which have included a placebo controlled trial of neuroleptics have produced a number of contradictory findings. First, neuroleptic maintenance is associated with reduced relapse rates (May et al., 1976a,b; Kane et al., 1982; Crow et al., 1986, Johnson et al., 1988; Scottish Schizophrenia Research Group, 1989a,b; Johnson et al., 1990; Robinson et al., 1999). However, there are individuals who successfully recover and maintain recovery without neuroleptics (Scottish Schizophrenia Research Group, 1989a,b; Johnson et al., 1990) although it is not yet possible to classify this group prospectively. Furthermore, maintenance neuroleptic therapy in itself does not predict good or poor outcome, indeed

there is evidence that neuroleptic medication exacts a social cost on individuals functioning (Johnson et al., 1990). In addition, there appears to be desynchrony between relapse and functioning. For example, whilst Johnson et al., (1990) reported an increased relapse rate for those maintained on placebo, this group showed improved levels of social functioning in comparison to those maintained on active antipsychotic medication. Therefore whilst studies have demonstrated that neuroleptics reduced relapse rate, this reduced liability to relapse does not necessarily confer advantages to functioning and potentially to individuals' quality of life.

2.3 Low Dosage Neuroleptics and Relapse

Although the balance of evidence shows that neuroleptic treatment is more effective than placebo in preventing relapse in schizophrenia (Davis, 1975; Crow et al., 1986; Robinson et al., 1999), antipsychotics exert a social cost, and a number of serious complications occur after prolonged use (Morgenstern et al., 1987). Indeed the occurrence of extra pyramidal side effects, such as tardive dyskinesia, akathisia and akinesia are major problems, which compromise both long-term use and acceptability. There is little consensus on what is the optimal dosage. Dose- response studies have not demonstrated a correlation between neuroleptic serum levels and clinical efficacy (Baldessarini & Davis, 1980). To improve the benefits-to-risk ratio, low dose strategies have been developed, with the aim of establishing the minimum dosage needed to prevent relapse. Such an approach to treatment is based on the proposal that neuroleptic dosages can be prescribed at dosages less than the ones required in the acute phase (Marder, 1999), and that the dosage can

be increased to treat relapse. In a meta-analysis of randomised controlled trials, Bollini et al., (1994) found that a chlorpromazine equivalent daily dosage of more than 375-mg gave no therapeutic advantage.

Barbui et al., (1996) conducted a meta-analysis of randomised controlled studies, which had compared low dosage neuroleptic therapy with a conventional dosage. Studies were included if they were double blind and had a follow-up of at least 12-months. A computerised search yielded a total of 100 potential studies from which only six met inclusion criteria (Kane et al., 1983; Marder et al., 1984; Marder et al., 1987; Hogarty et al., 1988; Johnson et al., 1987; Inderbitzin et al., 1994). This gave a total of 415 participants (214 in low dosage, and 201 in the conventional dosage group). In all the studies selected, relapse was defined as either an increase in two or more points on the Brief Psychiatric Rating Scale (BPRS; Overall & Gorham, 1962) or a worsening of symptomatology requiring hospital admission. Furthermore, all studies used a depot preparation: Fluphenazine decanoate in five trials, and Fluphenthixol decanoate in one. Low dosage was defined in three of the trials as 20% of the conventional dosage (Marder et al., 1984; Marder et al., 1987; Hogarty et al., 1988); 10% in one trial (Kane et al., 1983) and 50% in two trials (Johnson et al., 1987; Inderbitzin et al., 1994). All studies employed a 12-month follow-up, except two which followed participants to 24-months (Marder et al., 1987; Hogarty et al., 1988). Results according to Intention to Treat Analysis are illustrated in Table 2.2 below.

Relative risk refers to the risk of relapse in the low dosage group compared to the risk of relapse in the conventional group. A relative risk ratio of 2.00 means that the risk of an event occurring in an experimental group is two times greater than that of a control group. Relative risk reduction (RRR) is the complement of relative risk, expressed as percent. The results demonstrate that there is a significant increase in relapse rate associated with low-dosage neuroleptic therapy over 12-months. However over 24 months, relapse rates do not significantly differ.

There are three implications of these findings. First, over 12-months at least, it is not possible to make substantial reductions in neuroleptic dosage without increasing the risk of relapse. There is a fine balance between maximising the protection against risk of relapse, and minimising the social costs exerted by neuroleptic treatment. Second, it is significant that no significant differences were found for relapse rate over 24-months. These findings are reminiscent of those found by Crow et al., (1986). As discussed above, relapse rates between 12 and 24-months for participants on placebo were lower than those on active medication. Third, whilst low-dosage appears to be associated with increase risk in the short term, one solution may to provide increased medication during periods where there is evidence of imminent relapse. This approach to relapse prevention is discussed below.

Table 2.2 Low dosage studies of antipsychotic medication and relapse Intention to Treat Analysis at 12 and 24-months (From Barbui et al., 1996)

Study	Relapse Conventional	Low Dosage	Relative Risk (95% CI** RR)	RRR* (%) (95% CI RRR)	*P*
Kane, 1983	48	77	1.60 (1.20-2.13)		<.001
Marder, 1984	36	29	0.79 (0.35-1.76)		NS
Johnson, 1987	10	34	3.56 (1.09-11.67)		<.005
Hogarty, 1988	24	35	1.45 (0.69-3.05)		NS
Inderbitzin, 1994	35	35	0.99 (0.44-2.25)		NS
12-months overall				-47 (-15 to –88)	<.005
Hogarty, 1988	42	43	1.02 (0.59-1.75)		NS
Marder, 1987	45	49	1.08 (0.64-1.80)		NS
24-months overall				-5 (28 to –52)	NS

*RRR: relative risk reduction **CI: Confidence Interval

2.4 Early Intervention for Relapse

Docherty et al., (1978) proposed that prior to the development of full relapse there were identifiable and sequential phases, which they saw as an unfolding of a series of psychological states. These phases were conceptualised as being characterised by overextension, restricted consciousness, disinhibition, psychotic disorganisation and resolution. During the first phase of overextension, the individual begins to experience a sense of being overwhelmed by demands and conflicts. This phase is accompanied by increased symptoms of anxiety and nervousness. This is followed by the

appearance of a variety of mental phenomena, which limit the individual's ability to concentrate and think. Associated with this phase are increased symptoms of hopelessness, dissatisfaction, and loneliness. During disinhibition, the capacity of the individual to modulate impulses becomes impaired. The signs and symptoms of this phase are rage, panic and hypomania. This phase precedes increasing perceptual and cognitive disorganisation, loss of self-identity and fragmentation of control during the active phase of psychosis. This sequence suggests very clearly the hypothesis that relapse is characterised by the progression of increasing non-psychotic symptoms, through increased distress and psychological fragmentation and loss of control, into frank psychosis itself.

Retrospective studies of individuals and their families (Herz & Melville, 1980; McCandless-Glincher et al., 1986; Birchwood et al., 1989) show that both groups are able to recognise reduced well being. The most commonly reported early signs are sleeplessness, irritability, tension, depression, and social withdrawal. In their seminal study, Herz and Melville (1980) provided the first attempt to systematically identify the characteristics of relapse. They examined 145 individuals with schizophrenia and 80 of their relatives. In response to the question "Could you tell if there were any changes in your thoughts, feelings, and behaviours that might have led you to believe that you were becoming sick and might have to go to the hospital?" approximately 70% of participants noticed changes. Families were more likely than the patients themselves to identify changes, and in about 66% of cases both families and individuals were in agreement. For most individuals and their families the time

interval before relapse was more than one week. Between 50 and 60% of individuals and families sought professional help, however less than 4% had been advised by a professional to do so. Creer and Wing (1974) also reported a survey of 80 relatives virtually none had been given advice about the nature of early signs of relapse. The symptoms reported were ranked in terms of their frequency of being reported. The most common were tension and nervousness, sleeplessness, trouble concentrating, and loss of appetite and pleasure. This is consistent with Docherty et als.' (1978) proposal that the earliest stage of relapse is characterised by increased anxiety and tension. Herz and Melville's findings have been confirmed by three further retrospective studies (Kumar et al., 1989; Thurm & Haefner, 1987; and Hamera et al., 1992). However the results of these studies have suggested that across individuals there is considerable variation in the nature of specific prodromes. The consistency with which early signs themselves have been reported has led to the development of prospective investigations of early signs. In essence, these investigations have sought to identify the sensitivity and specificity of these early signs as an indicator of emerging relapse. Clearly if these early signs are sensitive and specific to relapse, the monitoring of such signs would enable early intervention potentially leading to the prevention and/ or amelioration of relapse.

2.4.1 Sensitivity and Specificity

In investigations of the predictive power of prodromes, researchers have adopted the concepts of sensitivity and specificity. Sensitivity refers to the ability of prodromes to correctly identify a forthcoming relapse. It is

essentially the proportion of individuals who experience a prodrome prior to relapse. Specificity refers to the power of such symptoms to correctly identify those individuals or times when a relapse will not occur. If prodromes are treated like a clinical test (Table 2.3 below), then sensitivity is inversely related to the number of false negatives (the proportion of those who relapse and do not experience a prodrome), and specificity is inversely related to the number of false positives (the proportion of individuals who experience a prodrome and do not relapse).

Table 2.3: Sensitivity and Specificity

	High	**Low**
Sensitivity	Low false positives	High false positives
Specificity	Low false negatives	High false negatives

2.4.2 Prospective Studies

Malla and Norman (1995) in their systematic review of the early signs literature found very few studies that directly assessed the relationship between putative prodromal symptoms or early signs, and the exacerbation of relapse (Subotnik & Neuchterlein, 1988; Birchwood et al., 1989; Gaebel et al., 1993; Jolley et al., 1990; Jorgensen, 1998; Marder et al., 1991; Marder et al., 1994; Tarrier et al. 1991). Table 2.4 below provides a summary of the studies that have examined the sensitivity and/ or specificity of putative prodromes. One study (Jorgensen, 1998) was not included in Malla & Norman's (1995) study. Three studies (Jolley et al., 1990; Gaebel et al., 1993; Marder et al.,

1994) were conducted in the context of a concurrent intervention trial. These studies are considered under Section 2.4.3 below.

Table 2.4 Sensitivity and Specificity of Early Signs

Author(s)	Relapses	Sensitivity %	Specificity %
Subotnik & Neuchterlein (1988)	17	59	NR
Birchwood et al (1989)	8	50 63	100 82
Jolley et al. (1990)	10	73	NR
Tarrier et al (1991)	16	50 62.5	81 87.5
Gaebel et al (1993)	162	8 14 10	90 70 93
Marder et al (1994)	42	37 48	NR
Malla & Norman (1994)	24	20 <50	NR 90
Jorgensen (1998)	11 16	73 88	89 64

Subotnik and Neuchterlein (1988) reported a prospective study of prodromes in relation to relapse amongst 50 individuals with schizophrenia or schizoaffective disorder. Participants were assessed fortnightly using the 18-item Brief Psychiatric Rating Scale (Overall & Gorham, 1962). Relapse was defined by a rating of severe or extremely severe on 3 of the items; Unusual Thought Content, Conceptual Disorganization, and Hallucinations. Using Discriminant Analysis, BPRS subscales Hostile-Suspicious and Thought Disturbance correctly classified 10 out of the 17 relapses giving a sensitivity of 59%. Birchwood and colleagues recruited 17 individuals with

Schizophrenia. Participants were assessed fortnightly using the self-rated or informant-rated Early Signs Scale over a nine-month period. Relapse was defined as any hospital admission or a clinician's judgement of imminent relapse or probable admission. Eight relapses were identified (6 readmissions and 2 incipient relapses). Increases in early signs yielded a sensitivity to relapse of 50% and specificity of 100%. Using an increase above a cut-off score of 30 on the scale yielded a sensitivity of 62% and specificity of 82%. Tarrier et al., (1991) examined 56 individuals with schizophrenia at monthly intervals over 9-months using the Psychiatric Assessment Scale (Krawiecka et al., 1977). Relapse was defined as the reappearance of positive psychotic symptoms or the worsening of persistent or residual positive symptoms, and a duration of at least one-week. Twenty-three participants relapsed during the course of the study. Of these participants, 7 were excluded from analysis; 3 relapsed within the first three-months, and four had incomplete data. Discriminant analysis was used to predict relapse from symptom increases in the month prior to relapse. Depression alone yielded a sensitivity of 50% and specificity of 81%. When depression was combined with hallucinations, sensitivity was 62.5% and specificity 87.5%. Malla and Norman (1994) examined 55 individuals with schizophrenia monthly over a period of at least 12 months (range: 12-29 months). Variance in psychotic symptomatology was rated using the Scale for Assessment of Positive Symptoms (SAPS; Andreasen, 1984). Participants' non-psychotic symptomatology was rated using Beck Depression Inventory (BDI; Beck, 1978), and the State-Trait Anxiety Inventory (STAI; Speilberger et al., 1968). Data were analysed using a longitudinal correlational design. Since many participants showed little or no

variation in psychotic symptoms, many were excluded from analysis. Less than half of the sample showed adequate variance; 24 demonstrated a range of scores on the Reality Distortion Subscale of the SAPS (delusions and hallucinatory phenomena), and 23 for Disorganization Subscale. Using a 1-month time lag, the percentage of significant positive correlations between non-psychotic and psychotic symptoms were low, the most significant being 20% for depression and reality distortion. In order to account for the possibility that these correlations may be a reflection of level of psychosis rather than a predictor of psychosis itself, partial correlations were carried out. The percentage of significant correlations reduced, for example, only 4% of correlations between depression and reality distortion remained significant. This finding reflects the possibility that much of the predictive usefulness of non-psychotic symptoms may be because they themselves are related to early and subtle signs of psychosis. Malla and Norman (1994) proposed that whilst in their sample, psychotic symptoms were not frequently preceded by prodromal symptoms, when increases in non-psychotic symptoms occurred they would be invariably followed by increases in psychotic symptoms. In order to investigate this hypothesis increases in both psychotic and non-psychotic symptoms were treated as discrete events. Significant increases in symptomatology were defined by an increase over the mean of one standard deviation for each participant. In line with their hypothesis, specificity was high (90% for reality distortion and 83% for disorganization), meaning that it was relatively rare that a substantial increase in non-psychotic symptoms was not followed by a substantial increase in psychotic symptoms. On the other hand, sensitivity for both reality distortion and disorganization was low (less

than 50% for 83% of subjects), meaning that many increases in psychotic symptoms were not preceded by increases in non-psychotic symptoms.

Jorgensen (1998) examined 60 individuals with schizophrenia, 30 of whom had residual positive psychotic symptoms (symptomatic), and 30 who were fully remitted (asymptomatic). Participants were interviewed every fortnight over six months or to relapse. Each interview assessed the participants mental state for the previous 72 hours according to the Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987). Participants were also monitored every second week using the self –report Early Signs Scale (ESS; Birchwood et al., 1989). Relapse was defined as a rating of 'moderate' or greater, representing an increase of at least two scale points on any one of the positive scale items of the PANSS. In total 27 (45%) participants relapsed, 16 (27%) of whom were readmitted. For symptomatic participants sensitivity was 88% and specificity 64%, and for asymptomatic participants sensitivity was 73% and specificity 89%.

Across the eight studies reporting sensitivity and specificity for prodromal signs to relapse, findings on sensitivity range from 8 to 88%, and specificity from 64 to 93%. Strict comparison across these studies is problematic given the nature of differences in methodology and design. However it is clear that when studies include positive symptoms or incipient psychosis in definitions of prodromes (Subotnik & Nuechterlein, 1988; Birchwood et al., 1989; Tarrier et al., 1991; Jorgensen, 1998), this exaggerates the sensitivity of prodromes to relapse. This questions the basis of the concept of prodrome itself. Prodromes

have been viewed as dichotomous phenomena; that is events, which occur before a relapse. The inclusion of low level positive psychotic symptoms, such as ideas of reference or thought control, changes the concept of relapse radically to a continuous model, where the appearance of increased dysphoric symptoms represent an individual's response to the reemergence of psychotic symptoms. Such a continuous model of relapse therefore sees apparent prodromal signs, as evidence of early stages of relapse. The consistency of the findings on specificity, which are reported across these studies (64 to 93%), is supportive of this proposal. That is, when non-psychotic symptoms increase they are almost always, but not inevitably followed by a relapse in positive psychotic symptoms.

2.4.3 Neuroleptic early intervention.

A number of studies have sought to include the assessment of early signs to facilitate early pharmacological intervention. These studies are reviewed below. Carpenter and Heinrichs (1983) conducted a randomised-controlled trial comparing continuous and intermittent medication. In the intermittent condition participants were maintained drug free until symptoms suggestive of relapse appeared. When such symptoms appeared, drug treatment was reinitiated at therapeutic dosages. This protocol was also applied to those receiving continuous medication, where the appearance of early signs resulted in an increase in medication dosage to a discretionary level that was considered therapeutic for that episode. In addition to receipt of medication, participants received ongoing case management which included individual and family based education regarding the early signs of relapse, coping skills

enhancement for dealing with stressors and improving functioning. Participants who entered the trial entered a four to eight-week stabilisation phase prior to randomisation to intermittent or continuous medication conditions. A total of 41participants (Intermittent n = 14, Continuous n = 27) were followed up at 24-months. At 24-months there were no significant differences in positive symptoms, social and work performance, negative symptoms or hospital admissions.

Herz et al., (1989, 1991) compared intermittent medication with continuous medication amongst a group of stable outpatients with schizophrenia on the basis of a nine-month pilot study (Herz et al., 1982) which found a relapse rate of 11% for 19 individuals without medication. In the 1989 study 140 participants were entered into the study for gradual drug withdrawal. Of this group 101 were able to proceed to a double-blind placebo controlled study evaluating the relative efficacy of active medication (n = 51) or intermittent medication (n = 50). Participants were dropped from the study if they had three prodromal episodes in one-year or if an episode lasted longer than nine-weeks. Fourteen percent of participants were dropped from maintenance treatment, compared to 46% of intermittent. Seventy three percent (37/51) of the maintenance group and 38% (19/50) of the intermittent group completed the study at two-years. Time to first prodromal episode and 12- and 24-month survival rates were higher for the maintenance group (56% and 43%) than for the intermittent group (20% and 16%); the overall difference was statistically significant (Log_{rank} = 10.92, p = 0.001). For relapse the 12- and 24-month survival rates were higher for the maintenance group (90% and 83%)

compared to the intermittent group (71% and 64%); the overall difference was statistically significant ($Log_{rank} = 4.14$, $p = 0.042$).

Jolley et al., (1989) randomized 54 individuals who had been clinically stable for at least six months, without active phase or residual positive psychotic symptoms to two groups. The control group (n = 27) received fluphenthixol decanoate at pre-trial doses, whereas the intermittent group (n = 27) received equivalent doses of placebo injections. Treatments were administered under double blind conditions. Early symptoms were defined on the basis of the appearance of neurotic or dysphoric symptoms persisting for two days or more. Relapse was defined as the re-emergence of florid psychotic symptoms or by a re-admission to hospital. All participants and their closest relative or co-habitee received a one-hour educational session concerning schizophrenia and early signs of relapse. In the event of prodromal identification, additional oral haloperidol, 5-10 mg daily, was provided. Treatment in the early relapse period continued for two weeks unless a relapse occurred. Treatment of relapse continued for four weeks after remission. At one-year, relapse was significantly more frequent in the intermittent group compared to the control group ($\chi^2 = 3.0682$, df = 1, $p = 0.04$). There was no difference between the rates of admission between the two groups; indeed rates of admission were low, suggesting that the additional relapses in the intermittent group were of milder severity. Significantly more early signs were identified in the intermittent group ($\chi^2 = 9.7862$, df = 1, $p = 0.002$). Jolley et al. (1990) reported on two-year outcome for this cohort. By two years, 50% of the intermittent group, and 12% of the control group had relapsed ($\chi^2 = 6.36$, df =

1, p = 0.005).

Marder et al., (1994) studied the effectiveness of treating individuals with low doses of Fluphenazine decanoate and supplementing them with oral Fluphenazine when there was evidence of early signs of relapse. They recruited 80 individuals with a diagnosis of schizophrenia (DSM-III-R). All participants were stabilised on 5 to 10mg Fluphenazine decanoate fortnightly over two-months. All participants were monitored fortnightly using the Idiosyncratic Prodromal Scale, which was a three-item scale derived from items endorsed by participants using the Early Signs Questionnaire (Herz et al., 1991). On the appearance of an increase in early signs, participants were randomized to either Fluphenazine or placebo supplementation. Participants were followed up for two-years. During this period a total of 88 relapses occurred across 42 participants (52.5%). Of those in receipt of active supplementation, 29% had early signs identified prior to relapse, versus 50% in the placebo supplementation group. In terms of the efficacy of active versus placebo supplementation there were no significant differences in the first year. However, among the patients who entered the second year of the study, 58% (n=14) of the participants treated with Fluphenazine survived without an exacerbation, versus 16% (n=15) of the placebo treated group (likelihood ratio: χ^2 = 4.61, p = 0.032). The authors noted that in the active supplementation group, participants and clinicians improved in their ability to detect early signs, with the positive predictive value increasing from 29% in the first 6-months to 63% in the last 18-months. The change in the effectiveness of the active strategy over time suggests a limitation to early

intervention in the context of low or intermittent dosage approaches. There may be a trade-off between increased risk in the shorter term, and increased knowledge and skill in the longer term. Indeed the acquisition of knowledge is a continuous and collaborative process, which as evidenced by the results of Jolley et al (1989, 1990), cannot be achieved in simple didactic and one-off educational sessions.

Gaebel et al., (1993) and Doering et al., (1998) reported on 364 individuals with a diagnosis of Schizophrenia (ICD-9) or Schizoaffective Disorder (RDC) who were randomised to one of three neuroleptic treatment groups following a 3-month stabilisation phase; maintenance therapy (122), early intervention (127), and crisis intervention (115). Individuals in maintenance therapy received a continuous standard neuroleptic treatment, where neuroleptic dosage was individually determined according to clinical requirements. Those who were randomised to early intervention had their neuroleptics discontinued according to a 50% reduction every two weeks. Neuroleptic treatment was reinitiated on the appearance of early signs of relapse. The crisis intervention group also had their neuroleptic treatment discontinued according to the same strategy as the early intervention group, but only had their neuroleptic treatment reinitiated in the event of a crisis; that is a full relapse. Participants were followed up for 2-years. A total of 205 (56.3%) participants dropped out during the study; 42.6% of maintenance treatment, 59.8% of early intervention, and 67% of crisis intervention. Of those who dropped out only 10 could not be followed up. Maintenance treatment was associated with reduced relapse (23%) and re-hospitalisation (24.6%) compared to early intervention

(50.4%, 38.6%), and crisis intervention (62.6%, 44.4%) and participants who dropped out (41.3%, 33.0%). In terms of predictors of outcome, crisis intervention, a diagnosis of schizoaffective disorder, and having a strong religious faith were associated with increased risk of relapse, whilst maintenance treatment, and having a diagnosis of schizophrenia (residual type) were associated with reduced relapse risk. In terms of predictors of hospitalisation, being male, being aged under 40, having a history of a suicide attempt, and having had no hospitalisation in the previous year were associated with an increased risk of hospital admission.

Whilst results show that maintenance medication is superior to intermittent medication for relapse prevention for most individuals, there is some evidence that early intervention is effective in reducing relapse rates when participants are without medication. Relapse rates for individuals on placebo in intermittent drug studies average 50% over two years compared to a relapse rate of 75% for individuals on placebo in conventional drug trials. Furthermore, Marder et al., (1994), in their study of low-dose neuroleptic medication, found a significant advantage for supplementary oral fluphenazine over placebo at the appearance of early signs. This was particularly true in the second year of the study after professionals and participants had learned to recognise early signs. Herz et al., (2000) have reported the only controlled study to date which has examined targeting increases in neuroleptic medication on the appearance of early signs of relapse, and used a comparison group of participants who were maintained on standard doses of neuroleptic medication. Eighty-two participants with a diagnosis of schizophrenia or

schizoaffective disorder (DSM-III-R; APA, 1987) entered the trial. Participants were randomised to either Treatment as Usual (n = 41) or an experimental group called the "Program for Relapse Prevention" (PRP; n = 41). All participants, except two, received standard doses of antipsychotic medication (300-1000-mg Chlorpromazine daily equivalents). PRP consisted of (1) education for the participants and their families about the process of relapse; (2) active monitoring of early signs by the treatment team, participants, families, and others in frequent contact with the participant; (3) clinical interventions within 24 to 48 hours of identification of a 'prodromal' episode; (4) one hour weekly supportive group therapy emphasising coping skills or 30- 45 minute supportive individual therapy sessions; and (5) 90 minute multifamily psychoeducation groups, which were bi-weekly for six months and monthly thereafter. Clinical interventions during early signs consisted of crisis problem solving, supportive therapy, and increased medication as required. Treatment as Usual (control) consisted of individual supportive therapy and medication management bi-weekly for 15- 30 minutes. The operational definition of relapse was based on the Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987) and the Global Assessment Scale (GAS; Endicott et al., 1976). Relapse was defined as an increase in any PANSS positive psychotic symptom score to moderately severe of higher (>=5) together with a GAS score of 30 or less. Participant outcomes at 18-months were coded as "Stable, no episodes", "Prodrome with no relapse" and "Relapsed". Outcome rates over 18-months were impressive. Of the PRP group there were 7 (17%) relapses compared to 14 (34%) in Treatment as Usual ($\chi^2 = 6.43$, $p = 0.011$). In addition, PRP teams were more effective at

detecting the early stages of relapse. There was some evidence that the PRP teams were declaring prodromal episodes too frequently, resulting in false positive interventions. PRP was associated with increased rates of "Prodrome with no relapse" at the expense of "stable" outcomes, compared to controls. However, balancing this finding there was a significant reduction in medication dosage between entry and 18-months in the PRP group compared to controls ($t = 2.01$, $df = 70$, $p = 0.05$).

Whilst this study shows convincing evidence of the value of early intervention for relapse, the case for the value of increasing neuroleptics during prodromal episodes is less convincing. First, there were significant reductions in overall neuroleptic dosage during the course of the study. Second, there was a sophisticated psychosocial intervention protocol combining psychoeducation, supportive therapy and coping skills enhancement. Amongst those families who attended the multifamily groups (29% of sample), only one participant relapsed, even though 50% of these participants experienced a prodromal episode. Uptake of supportive therapy in the experimental group was 100%, with 59% attending groups, and 41% selecting individual supportive therapy. Individual supportive therapy emphasised coping skills enhancement, whilst the control group received medication management. It is therefore reasonable to suggest that many of the active ingredients of PRP included non-pharmacological factors; active monitoring, assertive outreach within 48 hours, coping skills enhancement and family psychoeducation. The design of the study does not allow close analysis of the influence of how participation in psychosocial interventions impact on reduced relapse.

2.5 Psychosocial Factors in Trials of Neuroleptic Medication

May et al., (1976a,b) conducted a randomised controlled trial of five treatments in a cohort of individuals with a first admission of Schizophrenia. A total of 228 participants were randomised to either: (1) individual psychotherapy, (2) Stelazine, (3) Stelazine and Individual Psychotherapy (4) Electroconvulsive Therapy (ECT), and (5) Milieu. Milieu was a comparison group whose treatment was unspecified by the investigators other than to say that Milieu did not receive any of the treatments detailed in 1 to 4. Treatments were delivered on an inpatient basis until discharge, or for a period of 6 to 12 months until agreement by therapist and supervisor that treatment had failed. Treatment "success" or "failure" was broadly defined by whether or not participants were discharged from hospital. In terms of initial response to treatment, 65% (n = 30) of the individual psychotherapy, 96% (n = 46) of Stelazine, 95% (n = 42) of Stelazine and individual psychotherapy, 79% (n = 37) of ECT, and 58% of Milieu treatments were categorised as "successes". Participants were followed up for between two to five years. Experimental treatments were not continued, and intervening psychosocial or pharmacological treatment is not reported except hospital stay: the main outcome variable. Participants treated with Stelazine (alone and in combination) and those treated with ECT experienced fewer and shorter hospital stays than those treated with milieu or psychotherapy alone. The results of the trial are difficult to interpret given the presence of intervening treatments and high rates of attrition over the interim follow-up period. May et al. (1976b) speculated that the positive outcomes for ECT in comparison to

Stelazine might have been due to the shorter duration of index admission associated with these treatments, and thereby the minimisation of social exclusion and institutionalisation. However, this factor was not examined in relation to outcome across the five treatment groups.

Hogarty et al., (1974) conducted a two-year maintenance study which controlled for antipsychotic medication (APM) and psychosocial treatment (Major Role Therapy, MRT, an atheoretical treatment, which included an emphasis on problem solving skills). A total of 374 Participants were randomised to either APM + MRT or placebo APM + MRT, placebo APM alone, APM alone. At two-years MRT gave no additional benefit, to placebo medication alone, with over 80% of participants experiencing a relapse within two-years. However, analysis of predictors of outcome, indicated that better remitted participants survived longer on the combination of active antipsychotic and psychosocial intervention, whilst the poorly remitted group were more likely to relapse if they received psychosocial treatment.

In a further study by Hogarty et al., (1979) recently discharged individuals with schizophrenia were randomised to either fluphenazine decanoate (FD) or fluphenazine hydrochloride (FLZ). All participants received either a combination of FD and an oral placebo, or active FLZ and depot placebo. Therefore if relapse was due to covert non-compliance, greater survivorship would follow upon receipt of the active depot FD. This study produced provocative results. At one year 29% of those participants receiving FD in combination with the same psychosocial treatment delivered in the Hogarty et

al. (1974) study, had relapsed compared to 41% of FD alone, 34% of FLZ alone, and 46% of FLZ in combination with psychosocial intervention. By the second year there were no further relapses in the FD and psychosocial group. However by two years 53% of FD alone, 68% of FLZ and psychosocial treatment, and 65% of FLZ had relapsed. The difference in relapse rates for FD and psychosocial treatment in combination compared to FD alone did not achieve statistical significance at two years (29% versus 53%; $\chi^2 = 3.35$, df = 1, p = 0.07). In a further study by Hogarty et al. (1986), the atheoretical nature of the psychosocial intervention was abandoned in light of emerging evidence concerning the role of family stress acting on relapse vulnerability. Hogarty and colleagues compared Family Psychoeducation (FT), with Social Skills Training (SST), and the two treatments in combination (FT + SST). They found relapse rates of 19% for FT, 20% for SST, 0% for FT + SST, and 38% for medication controls at one year. At two-year follow-up (Hogarty et al., 1991) the effects of SST had reduced, but a significant effect for FT persisted over medication controls (27% versus 66%). There was evidence that those in receipt of FT were more compliant than their medication only controls (21% versus 40%), however the effect of treatment remained statistically significant after controlling for compliance. However, the question of how psychosocial treatment may confer reduced vulnerability to relapse remains open. In particular, are the benefits of psychosocial intervention limited to those who are living with their family, thereby excluding a potentially large proportion of individuals living independently of their families in the community?

In an attempt to develop a more disorder and context relevant approach to psychosocial interventions, Hogarty et al., (1997a,b) reported on the three year outcome of 151 individuals with schizophrenia or schizoaffective disorder (RDC) who were examined in one of two trials over 36 months. In Trial 1, 97 participants who resided with their family were randomly allocated to one of four conditions: Personal Therapy (PT), Family Psychosocial Management (FT) a combination of FT and PT, or to a Supportive Therapy (ST) control. In Trial 2, 54 participants who either lived alone or in shared accommodation were randomised to either PT or ST. Personal Therapy involved three phases; (1) psychoeducation and the identification of affective, cognitive, and physiological experience of stress. The appraisal of stress and the effect of its expression on the behaviour of others was also facilitated; (2) Participants were also taught stress management techniques, and social skills training was offered if required. In addition, (3) further skills training in managing criticism and resolving conflict was offered. PT was offered for the first 18-months of the study. Supportive Therapy (ST) involved the provision of psychoeducation alongside ingredients included in other treatment modalities (i.e. active listening, correct empathy, appropriate reassurance, reinforcement of health promoting behaviours, and use of the therapist as advocate and problem solver in times of crisis).

Relapse was defined by the reoccurrence of psychotic symptoms or the exacerbation of residual symptoms in combination with a decrease in the Global Assessment Scale score of 10-points or more. Over three years, 44

(29%) of participants across both trials experienced a total of 66 psychotic relapses. All but two psychotic relapses required hospital admission.

Overall, for participants in Trial 1 (those living with family), of those who received PT either alone or in combination with FT (n = 49), 12 (24.5%) participants relapsed compared to 35.4% (17 / 48) of those who received either ST or FT. This difference was not statistically significant ($\chi^2 = 2.87$, df = 1, p = 0.09). Of the PT alone group, 3 out of 23 (13.0%) participants experienced a relapse compared to 7 out of 24 (29.2%) of the ST alone group. Again this difference was not statistically significant ($\chi^2 = 2.74$, df = 1, p = 0.098). PT was associated with a statistically significant reduction in relapse rate in comparison with FT alone (10 / 24; 41.7%, $\chi^2 = 5.33$, df = 1, p = 0.021). In contrast, in Trial 2 (participants without family) participants receiving PT experienced significantly more relapses (11 / 25; 44%) than those receiving ST (4 / 29; 13.8%), ($\chi^2 = 5.63$, df = 1, p = 0.018).

This was a complex study with multiple treatment groups, which attempted to control for the context of the individuals' living circumstances. Compounding this, there were a number of additional problems, which limit the interpretation of the study's findings. Whilst all participants in both trials were prescribed antipsychotic medication, which was adjusted to the Minimum Effective Dose, i.e., the dosage below which prodromes of a new episode are likely to emerge but above which more than mild hypokinetic rigidity was observed (Hogarty et al., 1988). Assurances were made for balance of depot versus oral preparations of antipsychotic medication, and non-compliance was

infrequent. There were, however, important antipsychotic medication differences within trials. Neuroleptic doses were higher amongst participants in trial 2, and by year 3, 27% of participants in trial 2 were receiving clozapine, compared to 14% of participants in Trial 1. In addition those participants in Trial 2 were older ($F = 4.03$, $df = 1,145$, $p = 0.002$), were ill for a longer period of time ($F = 2.75$, $df = 1,145$, $p = 0.020$), and had a greater history of prior hospitalisations ($F = 2.55$, $df = 1,145$, $p = 0.030$). Furthermore, not all participants received the same "dosage" of psychosocial interventions. In terms of phase of treatments in the PT and FT conditions, 8% of participants and families failed to move beyond the basic phase of therapy (engagement, psychoeducation, and identification of stress responses). Thirty eight percent of participants and 40% of families entered intermediate phases of PT or FT but did not complete this stage. Therefore, approximately one half of participants and their families were able to move into more advanced stages of treatment. In conclusion, a significant proportion of participants did not receive the full treatment protocols.

Kemp et al., (1998) conducted a randomised-controlled trial of Compliance Therapy, a brief pragmatic intervention targeting medication adherence, amongst 74 participants with psychosis. A substantial proportion of these individuals (58%) had a diagnosis of Schizophrenia (DSM-III-R, APA, 1987). Compliance Therapy consisted of 4 to 6-sessions divided into three phases. Phase 1 consisted of review of illness history in order to ascertain participants' view of their illness and their stance towards treatment. In Phase 2, where ambivalence towards treatment was identified, this was explored further by

helping the individual weigh up costs and benefits of treatment. Therapist emphasised benefits of medication compliance. Phase 3 focused on the role of medication as an 'insurance policy' against relapse. Psychosis itself was normalised, and parallels drawn with the role of medication in physical illnesses. Booster sessions were offered at 3, 6 and 12 months. Participants were followed up to 18-months. Compliance therapy had a significant advantage in terms of survival in the community over the 18-month follow-up period, but not for relapse. Indeed relapse was high in both groups. Using Cox's Regression analysis, the hazard function (risk of readmission) of a participant in the control group was 2.2 times that of Compliance Therapy. Compliance therapy was also associated with improved compliance, insight (Schedule for Assessment of Insight; David, 1990), drug attitudes (Drug Attitudes Inventory; Hogan et al., 1983) and global functioning (Global Assessment of Functioning Scale; GAF disability scale from DSM-III-R). However, overall 35% were lost to follow-up; or 28% (n = 11) from Compliance therapy and 43% (n = 15) from control. The authors noted that this sample was an inner city group, which was highly mobile and difficult to follow-up. In addition, inspection of baseline assessments revealed that both groups were receiving very high chlorpromazine equivalent dosages (869 mg in Compliance Therapy and 776 mg in control). In addition 59% of participants were detained under the Mental Health Act at index admission, had an average of about 9 years of illness, a mean of about 4 previous admissions. This data would indicate that the participants in this study were a severely ill group with high chronicity; indeed a group who are likely to have

had both negative illness experiences and negative beliefs concerning neuroleptic treatment.

2.6 Family studies of Expressed Emotion and relapse in Schizophrenia

The relationship between expressed emotion and relapse is a strong one, with High Expressed Emotion being a robust predictor of relapse in Schizophrenia. This is so much so, that some investigators have called for a moratorium on further Expressed Emotion research (Butzlaff & Hooley, 1997). Expressed Emotion (EE) refers to the construct representing some key aspects of interpersonal relationships and includes measurements of criticism, hostility, warmth, positive comments, and emotional overinvolvement (EOI). Kavanagh (1992) reviewed 23 studies of the relationship between EE and relapse. These studies had followed 1707 participants and their families over a 9- to 12-month period, and only three of these studies failed to find a relationship between EE and relapse. A median relapse rate of 21% was found for low EE families compared to 48% of high EE families. Twenty studies found that relapse was greater in the high EE group, and 16 of these studies found this to be statistically significant. Four studies reported relapse rate at two-years. The median relapse rate for low EE families was 27% compared to 61% for high EE families.

In terms of specific constructs of EE, Criticism and Hostility are strongly correlated, and Hostility is rarely present in the absence of Criticism. Indeed, Hostility has been found to independently predict relapse (Leff et al., 1987), whilst on the other hand, the association between EOI and relapse is less clear.

Warmth is negatively correlated with criticism to a moderate degree, and positively correlated with EOI. Brown et al., (1972) found that warmth in the absence of EOI, was associated with a positive outcome.

Leff and Vaughn (1985) proposed that high and low EE are trait-like measures: a characteristic response manner, where low EE relatives are seen as tolerant, non-intrusive and sensitive to their family members, whilst their high EE counterparts are prone to intolerance, intrusiveness, and the use of inappropriate and inflexible coping strategies. However, Brewin et al., (1991) found that relatives who had communication patterns characterised by hostility and criticism made more attributions to factors personal to and controllable by the individual with schizophrenia (e.g., " he doesn't get up because he's lazy"), than did relatives with marked EOI. These relatives made non-personal and uncontrollable attributions about the individual's behaviour. This has been investigated by Barrowclough et al., (1994) who examined the role of relatives' attributions for illness as a predictor of relapse in schizophrenia. Barrowclough and her colleagues proposed that critical, and particularly hostile, relatives would make attributions, which were more internal, personal and controllable to the patient, compared to relatives who display marked EOI and low EE. They proposed that these latter relatives would make more external, universal, and uncontrollable attributions to the patient. Spontaneous causal attributions were drawn from audiotaped interviews with the family and coded according to the Leeds Attributional Coding System (LACS). Attributions were coded along the following causal dimensions: internal-external; personal-universal, controllable-uncontrollable; stable-unstable. All

dimensions were assessed for the relative's perception of the patient's causal role in events. A total of 991attributional statements (AS) were drawn from taped interviews with 60-relatives. Relatives with high levels of EE had a higher rate of making causal attributions than did relatives with low EE. Compared to high EOI relatives, high EE relatives made more internal, personal and controllable attributions to the patient. In addition high EE relatives invoked causal attributions attributing responsibility to the patient for outcome. This pattern was apparent for those relatives who were hostile or critical, whether or not they were considered to be high EE or high EOI. Relatives high on EOI, made more attributions of causality to external and uncontrollable causes, and indeed made most attributions to illness. The contribution of attributions to relapse prediction was investigated using discriminant function analysis. Controllability and internality were significantly contributed to relapse prediction, even after controlling for EE status and intervention. Univariate analysis showed that relatives made more controllable by patient attributions than relatives of non-relapsers.

In a further analysis of this data, Barrowclough et al., (1996) investigated the relationship between expressed emotion, attributions and distress experienced by relatives. The association between relative attributions and distress was examined using Spearman's rank correlations. Distress was measures by relative scores on the four General Health Questionnaire (Goldberg & Williams, 1988) subscales (somatic symptoms, anxiety/ insomnia, social dysfunction, and depression). There was a general lack of association between distress and relatives' attributions, except for a relationship between the

tendency for relatives who blame themselves to have higher levels of distress across all subscales and total score on the GHQ. Further analysis of the relationship between EE and distress found a significant relationship between median scores for depression and high EE status. Furthermore there were significant correlations between depression and expressed criticism ($r = 0.44$, $p < 0.001$) and depression and hostility ($r = 0.35$, $p < 0.01$). Stepwise multiple regression was used to examine the contribution of illness chronicity, dimensions of EE, and self-blaming attributions to the variance in GHQ scores. Self-blaming attributions accounted for 18% of the variance in GHQ total ($\beta = 0.44$, $R^2 = 0.18$, $F = 13.29$, $p < 0.0006$), 14% for depression ($\beta = 0.27$, $R^2 = 0.14$). Other variables predicting depression were hostility ($\beta = 0.30$, adjusted R^2 change = 0.06) and emotional overinvolvement ($\beta = 0.29$, adjusted R^2 change = 0.06).

These studies demonstrate the importance of the role of attributions in the development of expressed emotion, the prediction of relapse in individuals with schizophrenia and the development of distress amongst relatives. Indeed this is consistent with the proposals of other investigators including Weiner (1985). Weiner proposed that causal beliefs held about other people's problems would be instrumental in the development of distressing emotions. Indeed attributional theories of depression propose that in depression negative events will be attributed to self, and will be perceived as enduring and stable. Given that causal attributions play a critical role in the development of patterns of expressed emotion and distress amongst relatives, which in themselves predict relapse, one could hypothesise that similarly, individuals

with schizophrenia will make attributions about their illness and illness experience which may predict the development of psychological distress associated with relapse and poor recovery.

2.7 Family interventions for relapse

Pitschel-Walz et al., (2001) describe a meta-analysis of 25 studies which has evaluated the efficacy of family interventions for relapse in schizophrenia. Previous meta-analyses (Mari & Streiner, 1994; Mari & Streiner, 1996, Pharoah et al., 1999) containing up to 13 studies, have demonstrated a moderate effectiveness of family interventions for schizophrenia in decreasing the frequency of relapse and rehospitalisation. Pitschel-Walz et al., were able to include more studies, which had not been published at the time of these earlier meta-analyses. Thirty-nine studies were identified, four were excluded because of lack of control group, nine studies did not use a randomised design, and in one study group comparisons were missing. Twelve studies compared family intervention with usual care (Goldstein et al., 1978; Leff et al., 1985; Speigel & Wissler, 1987; Spencer et al., 1988; Tarrier et al., 1989; Kelly & Scott, 1990; Hogarty et al., 1991, Posner et al., 1992, Vaughan et al., 1992; Randolf et al., 1994; Xiong et al., 1994; Zhang et al., 1994). Pitschel-Walz et al., found clear superiority for family interventions over usual care 6, 9, 12, 18, and 24 months after treatment. Long-term interventions (between 9 to 24 months) were more effective than short-term interventions (less than three months). Furthermore, analyses of five studies which combined family intervention with individual intervention (Cranach, 1981; Kelly & Scott, 1990; Hogarty et al., 1991; Buchkremer et al., 1997; Pitschel-Walz et al., 1998)

found clear superiority for this combination of treatments over routine care. However adding individual treatment to family intervention did not result in significant improvements over family intervention alone. Six studies compared family intervention with individual intervention (Ro-Trock et al., 1977; Falloon et al., 1982, 1985; Kelly & Scott, 1990; Hogarty et al., 1991; Telles et al., 1995; Hogarty et al., 1997a,b). There were no significant differences between the two interventions during the first year. However at two years, there was a highly significant advantage for family intervention.

2.8 Summary and Conclusions

Definitions of relapse vary across studies from readmission (Shepherd et al., 1989), the redevelopment of psychotic features or the deterioration of mental state as observed by others (Crow et al., 1986), or the return of exacerbation of positive psychotic symptoms such as hallucinations, delusions, and thought disorder (Eaton et al., 1998). Whilst little is known about the natural process of relapse in schizophrenia, numerous studies have examined the effectiveness of pharmacological and psychosocial treatments for relapse.

Studies examining the prophylactic efficacy of pharmacotherapy, have found that antipsychotic medication is superior to placebo in preventing relapse (Kane et al., 1982; Johnstone et al., 1986; Crow et al., 1986; Johnstone et al., 1988; Scottish Schizophrenia Research Group, 1989a,b; Robinson et al., 1999). However, antipsychotic medication exerts a social cost on individuals (Crow et al., 1988), and there appears to be a trend for those with a longer

duration of untreated psychosis requiring antipsychotic maintenance (Crow et al., 1986; Robinson et al., 1999).

Studies of low dosage (20 to 50% of conventional dosages) antipsychotic treatment reviewed by Barbui et al., (1996), have found an increased risk of relapse at 12-months, but not at 24-months. In addition, studies, which have examined maintenance versus intermittent prescriptions of antipsychotics, show superiority for maintenance treatment in the prevention of relapse (Jolley et al., 1989; Herz et al., 1991). However there is strong evidence that the efficacy of intermittent medication is influenced by the presence and dosage of a concurrent psychosocial intervention (Carpenter et al., 1987; Herz et al., 1991). Furthermore, the only study to compare antipsychotic early intervention + maintenance treatment with maintenance treatment alone (Herz et al., 1999) found superiority for early intervention in the prevention of relapse. Again this study had a continuous concurrent psychosocial intervention.

Psychosocial treatments in combination with antipsychotic treatment have been associated with reduced relapse (Hogarty et al., 1974; Hogarty et al., 1979; Hogarty et al., 1994; Hogarty et al., 1997a,b; Kemp et al., 1998). There is tentative evidence that the efficacy of these interventions is improved by having a theoretical and conceptual basis (e.g. family interventions) as compared to those, which do not (May et al., 1976; Hogarty et al., 1979). There is some evidence that individuals living outside of a family do less well with psychosocial intervention (Hogarty et al., 1997a). In addition, given that

that the uptake of family interventions has been low (Tarrier et al., 1998) and that many individuals live outside families or other established support systems, there is a need to develop individually based interventions, which can reduce relapse. Individual Cognitive Behavioural Therapy (CBT) is one such possible intervention. Chapter 3 will examine the efficacy of CBT in relation to relapse and consider the conceptual basis for individualised relapse prevention interventions.

Chapter 3

Psychological models of relapse

3.1 Introduction

As was seen in Chapter 2, despite the advances in pharmacological management of schizophrenia, relapse still remains a major factor in the development of illness chronicity. Indeed for the individual themselves, relapse is critical in the development of secondary depression. Birchwood et al., (1993) found that perception of control over illness was the most powerful predictor of depression in schizophrenia. Recognition of the social, emotional and psychological costs of relapse has lead investigators to attempt to conceptualise psychological approaches to the detection and prevention of relapse. In this chapter I will propose that an individual's attempts to assimilate and accommodate the changes associated with psychosis are central to the development and maintenance of symptomatology, associated disability and distress. It will be argued that the process of relapse encapsulates this interaction between an individual and their experience of psychosis. Indeed, given that relapse sees the emergence of positive symptomatology, there is a need to develop an integrative model of psychotic relapse that can accommodate existing psychological conceptualisations of relapse and positive psychotic symptoms such as hallucinations and delusions.

3.2 Cognitive Behavioural Therapy for Schizophrenia

Five controlled trials of Cognitive Behavioural Therapy (CBT) for schizophrenia have been reported (Tarrier et al., 1993; Drury et al., 1996a,b; Kuipers et al., 1997; Tarrier et al., 1998; Pinto et al., 1999; Sensky et al., 2000). All these trials have involved providing CBT in conjunction with antipsychotic medication. Four of these trials have examined the efficacy of

CBT for drug resistant positive psychotic symptoms (Tarrier et al., 1993; Kuipers et al., 1997; Tarrier et al., 1998; Pinto et al., 1999; Sensky et al., 2000). One trial examined the efficacy of CBT delivered during the acute psychotic phase (Drury et al., 1996a,b). CBT has been found to be superior to waiting list control (Tarrier et al., 1993), routine care (Kuipers et al., 1997), structured activity and informal support (Drury et al., 1996a,b), supportive counselling and routine care (Tarrier et al., 1998). Pinto et al., (1999) found that when combined with clozapine, CBT was superior to supportive therapy in combination with clozapine. Sensky et al. (2000) compared CBT to a befriending condition and found that at the end of treatment phase both had equal efficacy, however at 9-month follow-up the CBT group had continued to improve, while those in befriending did not.

Three CBT trials provide follow-up data at 9-months post treatment (Kuipers et al., 1998; Sensky et al., 2000), at 12-months (Tarrier et al., 1999), and 24-months (Tarrier et al., 2000). Kuipers et al., (1998) found that at 9-month follow-up those who had received CBT continued to improve, evidenced by significant improvements in delusional distress and frequency of hallucinations. Relapse rates at follow-up were not reported, although there were no statistically significant differences between CBT and routine care participants for time spent as psychiatric in-patients during the study period (Mean = 14.5 days versus 26.1days respectively). Sensky et al., (2000) also did not report relapse rates at 9-month follow-up although the CBT group continued to improve on measures of positive symptoms, depression and negative symptoms, compared to the befriending control group who had lost

most of the treatment gains made during the treatment phase. Tarrier et al. (1999) reported 12-month follow-up results for CBT compared to supportive counselling (SC) or routine care alone (RC). Participants in CBT continued to show significant treatment effects for both positive symptoms and negative symptoms. Pairwise comparisons showed a significant effect for CBT over RC for positive and negative symptoms, but not for SC. Unlike previous studies, Tarrier et al. did examine relapse rates pre-treatment and the 12-month post-treatment follow-up period (total duration = 15-months). A relapse was defined as a clinical deterioration or functional impairment, which resulted in a hospitalisation of five days or more, corroborated by casenote inspection. Of the original group of 87 participants, 70 were successfully followed up. Amongst this group there were the following relapse rates; CBT (6/23, 26%), SC (4/21, 19%) and RC (7/26, 27%). These differences were not statistically significant. Tarrier et al. (2000) reported on the two-year follow-up of 61 (70%) of participants randomised to treatment. At two years there were significant differences for both CBT and SC over RC for positive symptoms. There was no significant difference between CBT and SC groups. Again for negative symptoms both CBT and SC showed significant differences with RC, but there were no significant differences between CBT and SC. Time to relapse was examined using Kaplan-Meier survival curves for treatment groups. There were no significant differences between CBT and SC, and these groups were combined for comparison with RC. The number of relapses was greater in the RC group (11/28, 39%) compared to the combined group (13/59, 27%). The statistical significance of this difference in relapse rates was not

reported by the investigators. There was not a statistically significant difference between these groups on duration to relapse.

Outcome in terms of co-morbid symptoms of anxiety and depression are not reported by a number of trials (Tarrier et al., 1993; Pinto et al., 1999). Kuipers et al., (1997) found no effect for CBT on measures of self-rated depression. Tarrier et al., (2001) reported on the detailed outcome of their 1998 trial of CBT, which compared intensive CBT + Routine Care (RC), with Supportive Counselling (SC) + RC, and RC alone. Measures of anxiety and depression were examined to investigate whether affective symptoms improved over time and whether treatment groups differed at post treatment or in their relative change over time. There were no significant effects for time, group or time by group interaction on affective symptoms.

Drury et al., (1996b) delivered CBT during the acute psychotic phase of illness and defined clinical recovery as personal recovery from psychotic symptoms, recovery of insight, and the resolution of non-specific symptoms including dysphoria and 'low-level' psychotic thinking. Personal recovery from psychotic symptoms was defined as the lowest rating of hallucinations and delusions achieved over the follow-up period and maintained for at least three consecutive assessment points. Recovery of insight was defined as a score of >9 on the Insight Scale (Birchwood et al., 1994). Resolution of non-specific symptoms was defined as a score of <30 on the Early Signs Scale (Birchwood et al., 1989). Time to clinical recovery was defined as the time to resolution of all three components. Survival analysis using the clinical recovery definition

showed that the cumulative proportion failing to recover by 100-days was 50% for CBT and 85% for controls (Wilcoxan Gehan 4.9, df = 1, $p < 0.05$).

Sensky et al. (2000) examined the outcome of CBT versus befriending (BF) in a group of individuals with chronic drug resistant positive psychotic symptoms. Outcome of treatment was examined in terms of positive symptoms, negative symptoms and depression. At the end of treatment both CBT and BF groups showed significant improvements in positive symptoms, negative symptoms and depression. However at 9-month follow-up, CBT resulted in significantly greater improvements in positive, negative and depression symptoms compared to BF. Using an outcome criterion of 50% or greater improvement in symptoms as a measure of clinical significance of outcome, 31 of the 46 (67%) participants in CBT achieved this criterion, compared to 22 out of 44 (50%) of the BF group; a non-significant difference.

Evidence from recent randomised controlled trials of CBT for schizophrenia show that it is not yet possible to conclude on the basis of current results that CBT is effective in reducing relapse rate following treatment. Examination of treatment manuals adopted by trial investigators reveals that relapse prevention strategies are included within these protocols (Kingdon & Turkington, 1994; Fowler et al., 1995). These strategies focus on helping individuals recognise and respond to early signs of relapse by seeking help but do not specify particular cognitions or behaviours associated with the development of relapse acceleration, nor do these manuals specify psychological strategies to address cognition or behaviour during relapse. It

would seem reasonable to suggest that the results on relapse could, perhaps, be in part due to an inadequacy of existing CBT treatment protocols for relapse in psychosis. However, it should also be stated that the reduction of relapse was a secondary aim of these studies.

Results regarding the effectiveness of CBT in the treatment of psychological co-morbidity are both surprising and disappointing. Only one study (Sensky et al., 2000) demonstrates efficacy in the treatment of co-morbid depression, although CBT was not uniquely effective. In addition, whilst the treatment manual adopted in the Sensky et al., study specifically targets anxiety and depression, other treatment manuals also detail techniques and strategies aimed at reducing psychological co-morbidity (e.g. Fowler et al., 1995). Again such a finding may be accounted for by the lack of a specialised psychological conceptualisation of psychological co-morbidity in schizophrenia. For example, Birchwood et al., (2000) found that in a sample of 105 individuals with schizophrenia, 36% developed post psychotic depression (PPD) without concomitant changes in positive and negative symptoms. Iqbal et al., (2000) have proposed that, in line with Gilbert (1992) certain life situations are likely to be depressogenic, particularly if they encapsulate feelings of loss, humiliation and entrapment. In line with their proposal, psychosis is seen as a life event whose appraisal may involve these elements. Participants who developed PPD were more likely than their non-PPD counterparts to attribute the cause of psychosis to themselves, perceive greater loss of autonomy and valued role, and perceive themselves to be entrapped and humiliated by their illness. Given this finding, it may be that strategies aimed at reducing

psychological co-morbidity in schizophrenia should target cognitions and appraisal surrounding the meaning and appraisal of psychosis itself. This may help partially explain the findings of Sensky and colleagues who emphasise a normalising rationale for psychosis early in treatment.

However, empirically there is a strong link between the experience of relapse and the occurrence of psychological symptoms before relapse, and as a result of relapse itself via appraisals of entrapment. I propose that (1) there is a need to develop a psychological conceptualisation of relapse which can assist the targeting of relevant cognitive behavioural factors involved in the evolution of relapse and that such a model should (2) account for the relationship between relapse and psychological symptoms and distress.

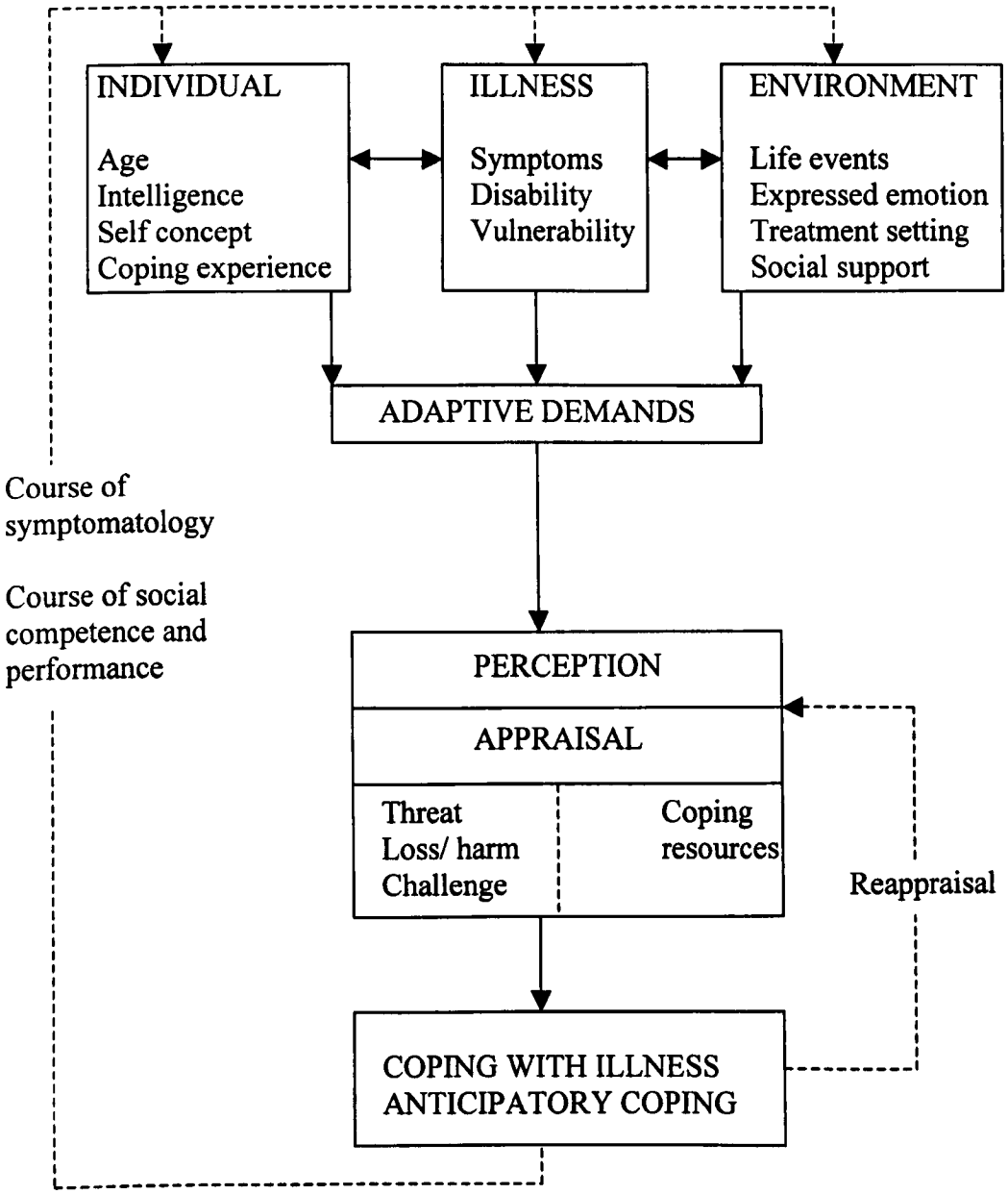
3.3 Psychological Models of Relapse

Thurm & Haefner (1987) proposed a model of relapse in schizophrenia, which placed the individual as an active agent, using coping strategies to decelerate or forestall the process of relapse. Their model (see figure 3.1 below) emphasized how individuals with schizophrenia face numerous adaptational demands as a consequence of their illness, and that individuals' perception of vulnerability to relapse would be associated with anticipatory coping strategies aimed at reducing relapse risk and regulating cognitive and emotional experience. Thurm & Haefner's (1987) model draws heavily from models of coping developed by Lazarus and co-workers (Lazarus & Launier, 1978; Roskies & Lazarus, 1980) and Moos & Tsu (1977). Lazarus formulated a dynamic transactional model of coping, implying a bi-directional relationship

between the person and their environment. Central to this model is the hypothesis that an event is not stressful per se, but the significance of an event is determined by the meaning attributed to it by the process of cognitive appraisal. Primary appraisal can lead to the judging of an event as a threat of loss, harm or challenge. Secondary appraisal implies the judgement of available coping reactions. It is the interaction between primary and secondary appraisal, which determines the perception of threat from an event. In a model of physical illness, Moos and Tsu, enumerated the various adaptive tasks to be dealt with by the individual. They distinguished between three illness-related tasks and four general tasks. Illness-related tasks were dealing with pain and incapacitation, dealing with the treatment environment, and developing satisfactory relationships with professional staff. The general tasks were preserving emotional well being, preserving a satisfactory self-image, preserving relationships with family and friends, and preparing for an uncertain future. Other important variables in their model are the factors determining cognitive appraisal and the choice of specific coping responses. Moos and Tsu proposed that these fell into three categories: background and personal characteristics (age, intelligence, self-esteem, previous coping experiences), features of the physical and social environment (hospital setting, home milieu, social support), and illness related factors (type and location of symptoms, pain, impairment).

Figure 3.1 Model of coping with schizophrenia

(from Thurm & Haefner, 1987)



Hultman et al. (1997) examined the role of life events, social support and coping-style in relation to relapse amongst 42 consecutive individuals admitted to an inpatient unit following a relapse of schizophrenia. In this study social support and coping were described and examined as moderating variables serving as protective factors which may mediate the relationship

between stress and relapse. Participants were followed up for 9-months following discharge from hospital. Of this group, 26 (62%) were living alone, the remainder with parents (12, 29%), partner (2, 5%) or friend (2, 5%). During the 9-month follow-up 14 (36%) relapsed. Hultman et al., (1997) found close proximity between the occurrence of life events and relapse. Those participants with few social contacts and a withdrawal-orientated coping-style were more likely to relapse than those who had social contact and a socially orientated coping style. When coping style was considered alone, relapse rates were significantly higher for those participants who withdrew during early relapse ($\chi^2 = 10.19$, df = 1, $p < 0.001$). This study provides evidence that individuals coping response to early relapse may accelerate or forestall relapse itself. Indeed, Birchwood (1995) points out that the individual variations in the nature and timing of early signs may be due to individual variations in coping response. Such variation will therefore act to reduce their apparent amplitude in group studies. Group studies fail to capture the qualitative and quantitative differences between individuals in their early signs. Therefore it may be more appropriate to think of early signs as an individualised configuration of symptoms which Birchwood refers to as a 'relapse signature'.

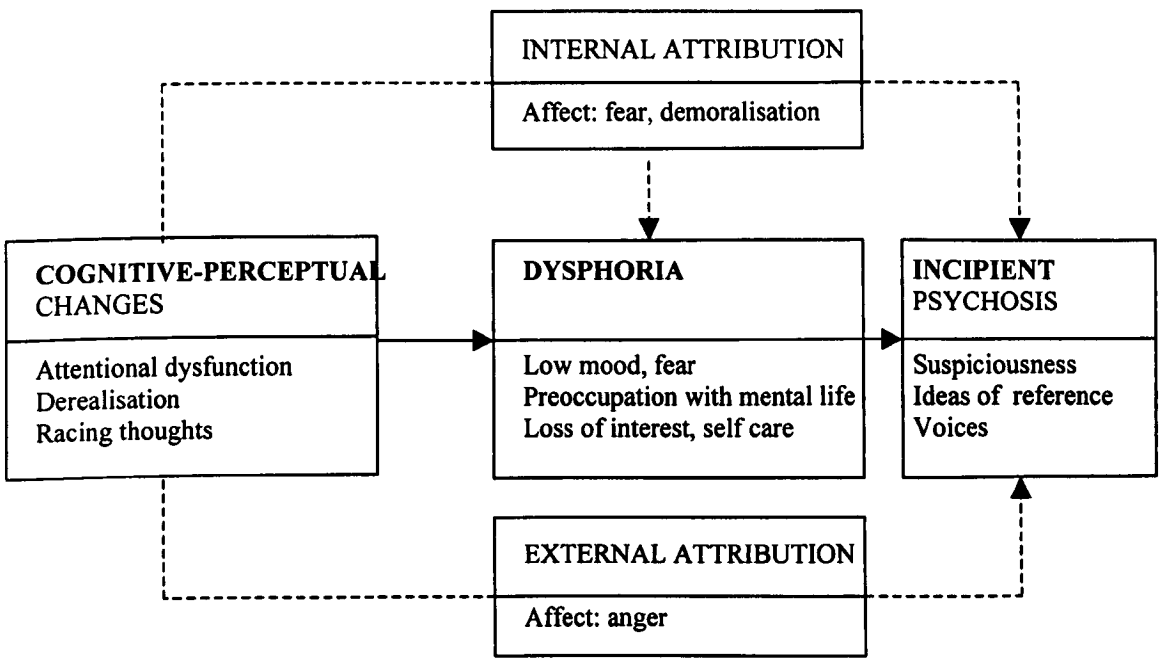
Birchwood (1995) accounts for this variation in the nature and timing of early signs by integrating individual's own idiosyncratic response to emerging relapse. This cognitive explanation for the variation in early signs suggests that dysphoric symptoms such as anxiety, tension, withdrawal, depressed mood, suspiciousness, and sleeplessness arise from the way in which

individuals explain and interpret internal and external events. Birchwood (1995) offers a compelling cognitive analysis of early relapse which integrates Maher's (1988) model of delusional formation and Weiner's (1985, 1986) attribution theory (see Figure 3.2 below). Maher (1988) had offered a cognitive account of delusions, which emphasised the experience of disturbances in perception. He proposed that in the experience of perceptual anomalies such as increased vividness of colours or difficulty in selectively attending to auditory stimuli against background noise, the individual seeks an explanation which is then developed through normal cognitive mechanisms. The explanation or delusion is maintained in the same way as any normal strongly held belief, and that the delusional belief is reinforced by the anxiety reduction, which accompanies the development of an explanation for disturbing and puzzling experiences. Evidence supporting this proposal is cited by Maher & Ross (1984) who noted that delusions occur in a large number of medical and psychological conditions. Second, Zimbardo et al., (1981) cited evidence that irrational beliefs can be provoked in the general population under anomalous environmental conditions such as hearing loss. Like Maher (1988), Birchwood proposes that the attributions made by individuals to account for and explain the emergence of disturbing symptoms can serve to either accelerate or retard the process of relapse. In this model, dysphoria is seen as a response to the fear of impending relapse (perhaps for those with previous experience of relapse) or a failure to explain symptoms and experiences (perhaps for those with less experience of relapse). This model might therefore predict that those individuals with extensive prior experience of relapse and its associated negative repercussions would respond

with high levels of fear and perhaps helplessness leading to depression and withdrawal. On the other hand, those with less experience may respond with puzzlement, confusion and perplexity. The model may also help explain the speed at which relapse proceeds by specifying the cognitive mechanisms and associated emotional consequences responsible for acceleration.

Figure 3.2 Attributional model of relapse

(from Birchwood, 1995)



To summarise, existing models of relapse in schizophrenia emphasise a number of factors. First, individuals can perceive subjective experience of internal changes in cognitive and attentional processes as indicating increased relapse risk and is accompanied by a search for meaning. Second, the experience of these changes is processed in terms of an evaluation of vulnerability to relapse in terms of available internal and external coping resources. Third, these appraisals are associated with the instigation of active strategies aimed at prevention of relapse and/ or the coping with relapse itself.

The phenomenological evidence for the presence, and indeed the role of these factors in initiating psychosis will now be examined.

3.4 Subjective experience in schizophrenia

The basis of Birchwood's (1995) model is that basic changes in cognitive perceptual processes account for the initiation of a psychological response involving attributions for the individual's experience. McGhie & Chapman (1961) proposed that the fundamental disorder in schizophrenia was a cognitive one, which was most clearly evident in the observation of attentional and perceptual processes. They argued that other aspects of the symptomatology of schizophrenia could be understood as the individual's psychological response to this basic disorder. They interviewed 26 individuals with schizophrenia early in their illness and obtained a vivid account of changes in attention, perception, awareness of movement, thinking and emotion. From these accounts they suggested that there was a loss of attentional focality. Attention was not directed in a determined manner by the individual's own volition, but by the diffuse pattern of stimuli existing in the total environment. The perceptual changes reported by these individuals were a heightening of sensory vividness in auditory and visual modalities, and a disturbance in the perception of speech patterns. McGhie & Chapman argued that disturbances in attention lead to a widening of the perceptual field, leading to the subjective experience of a changed sense of reality. In terms of the disturbance in the perception of speech patterns, McGhie and Chapman proposed that the disturbance in attention meant that information such as the syntax and form of speech, normally processed automatically, overloaded

normal information processing. Therefore individuals' were unable to appreciate the meaning of speech. Changes in bodily awareness were attributed to heightened awareness of bodily sensation and volitional responses causing overload in the ability of individuals' processing of information. The consequences of this overload were a loss of spontaneity of action, and 'self consciousness' of the minutiae of behaviour.

Freedman (1974) read 60 autobiographical accounts of the early experience of schizophrenia. She describes clear perceptual experiences including enhanced sensory awareness, muted sensory awareness, less acute vision, visual illusions, changes in depth perception, and changes in perception of one's own voice. She also found changes in more complex function including thinking being replaced by emotion, thinking in images, mistaking identities of other people, experiences of loss of meaning of objects, and physical sensations in the brain. Freedman & Chapman (1973) found that 8 subjective experiences distinguished patients with and without schizophrenia. These experiences included thought block, mental fatigue, inability to focus attention, visual illusions, hyperacute auditory perception, and misidentification of people and inability to comprehend others' language. Cutting (1985) interviewed 30 individuals with schizophrenia (15 remitted, 15 acute) and 15 individuals with depression about their early subjective experience. The features, which characterised schizophrenia rather than depression, were visual and auditory perceptual distortions, impaired understanding of language, and distortions in memory. Such findings have also been replicated by Docherty et al (1978), Heinricks et al (1985), and indeed recall Bleuler's descriptions of mood and

perceptual disturbance in prodromal schizophrenia (Bleuler, 1950).

Such changes have also been associated with affective disturbance, which is common at the initial presentation of schizophrenia (Johnson, 1981; MacGlashan, 1982) and following the initial episodes (Steinberg et al, 1987; Roth, 1970; Rada & Donlon, 1975; MacGlashan & Carpenter, 1976; Singh et al, 1978; Siris et al, 1978; Prusoff et al, 1979; Johnson, 1981; Knights & Hirsch, 1981). Indeed affective disturbance accounts for more primary care consultations than psychotic episodes (Johnson, 1981; Prusoff et al, 1979; Roth, 1970). This is consistent with previous studies of co-morbidity, which have documented that psychiatric co-morbidity can lead to heavier use of psychiatric services via more frequent and prolonged hospital stays (Menezes et al., 1996; Stakowski & Tolien, 1993). In addition, Glazer et al., (1981) found that individuals with depression in the context of chronic schizophrenia were more impaired in their social functioning and adjustment. Cheadle et al. (1978) found that in a sample of 190 patients with Schizophrenia, neurotic symptoms were not only prevalent, but also seemed to cause most of the reported personal problems including social isolation and unemployment. It has been suggested that these affective disturbances are neuroleptic induced (Alarcon & Carney, 1969; Van Putten & May, 1978). However, Johnson (1981) notes that such complaints are found in individuals maintained or not maintained on neuroleptics, and indeed prior to any neuroleptic exposure.

Chapman & McGhie (1963) suggested that individuals with schizophrenia become aware of abnormal experiences and that their reactions to these

experiences may play an important role in the development and maintenance of illness. They recommended that a psychotherapeutic understanding of the individuals perceptual and experiential difficulties would aid improved communication. In addition, they suggested that psychotherapy should aim to discover individuals' subjective experiences and cognitive disabilities, and reduce unhelpful or ineffective reactions to these experiences. Bowers (1968) argued that self-experienced changes in perception and awareness were critical to the transformation of normal experience to psychosis. In a composite experiential account drawn from interviews with fifteen patients, Bowers described changes in heightened awareness of internal and external stimuli. Associated with these perceptual changes he described individuals as having an increasing sense of urgency, reduced need for sleep, exaggerated affect, and a heightened sense of self. Alongside this heightened experience, internal and external events and stimuli normally outside awareness became meaningful and self-relevant. Individuals described becoming engaged, fascinated, perplexed or indeed scared by they're own experience. This state of heightened awareness of self gave way to what Bowers referred to as "a dissolution of self" or "loss of mental self-representation". This loss of meaning combined with a heightened awareness of internal and external stimuli gave way to the development and evolution of delusional beliefs constructed to make sense of "heightened and altered sensory influx and self experience, widened categories of relevance and a push for closure or meaning" (Page 352). Conrad (1958) had earlier referred to this stage as 'apophany', which he regarded as the essence of the process of the evolution of schizophrenia. In the purest form of apophany, the world took on a new

meaning but the individual could not say what this was. The compulsion of significance overwhelmed the individual.

In a review of the literature, Nuechterlein and Dawson (1984) found that several deficits on information processing and attentional tasks show great similarity across groups of individuals at heightened risk for schizophrenia, actively symptomatic individuals and relatively remitted individuals. Problems were identified in sustaining focused attention in high-processing-load vigilance tasks, in rapid read-out from sensory storage in the presence of patterned noise stimuli, and in short term recall involving rehearsal, especially in the presence of distraction. Similar deficits were found in reaction time, selective attention, and short-term recognition memory. Nuechterlein and Dawson (1984) proposed that these deficits represented enduring vulnerability-linked characteristics of individuals who are prone to schizophrenia. They also found evidence of deficits on certain tasks amongst individuals with active symptomatology, which were not present amongst those whose symptomatology was remitted or amongst those at risk of developing schizophrenia. These tasks involved vigilance with relatively low momentary processing loads or letter recognition tasks, which use very brief exposure times without a visual mask. This finding is consistent with McGhie & Chapman's (1961) original proposal that early in the course of the symptomatic emergence of schizophrenia, information processing becomes overloaded. They proposed that this was a primary problem in attentional processing of irrelevant stimuli, which initiated a changed sense of perception of the internal and external environment.

Healy (1990) developed the proposals of Chapman and his colleagues, by arguing that application of their basic proposal requires recognition of the multi-dimensionality of the positive and negative syndromes apparent in schizophrenia. Healy argues that the proposal by Chapman & McGhie (1963) is congruent with the evidence for the efficacy of cognitive therapy in the management of 'biological' depression (Healy and Williams, 1988), and indeed the role of mediating processes in schizophrenia (Brenner & Boker, 1989). Experimental evidence supporting Healy's (1990) proposal comes from two studies. First, consistent with Healy (1990), Van den Bosch and Rozendaal (1988) hypothesised that the self-report of cognitive difficulties in schizophrenia should be correlated with objective indicators of vulnerable information processing. In a study of 21 recently admitted psychotic individuals, repeated measures of psychotic symptoms, psycho-physiology, and subjective experience of cognitive dysfunction were taken 10 days after admission, and at 1 and 2 month follow-ups. The psycho-physiological measures included in this study were Smooth Pursuit Eye Movements (SPEM), Contingent Negative Variation (CNV) and Reaction Time (RT). All of these measures are known to be associated with psychosis and are assumed to reflect disorders of information processing (Nuechterlein, 1977; Levin, 1983; Pritchard, 1986). Close relationships were found between the subjective experience of cognitive dysfunction and the psycho-physiological measures. In particular, high correlations were found between subjective experience and SPEM ($r = 0.66$, $p < 0.01$), and RT ($r = 0.58$, $p < 0.01$). No significant correlations were found between psychotic symptoms and SPEM ($r = 0.35$, p

= n.s.) and RT (r = 0.31, p = n.s.). Whilst, the correlational nature of this study weakens its power, the results support the view that subjective experience is more closely related to information processing difficulties than psychotic symptoms themselves. In this sense, subjective cognitive difficulties seem to have a mediating descriptive value, between, on the one hand neuro-physiological dysfunction, and on the other psychotic experiences. Second, Albers et al. (1998) examined individuals who showed definite evidence of the basic symptoms described by Chapman (1966) at an index examination and individuals who did not show any evidence of symptoms, in order to determine whether the presence and type of basic symptoms can predict the development of schizophrenia. Of the 78 patients who showed definite evidence of basic symptoms, 56 (72%) underwent transition to psychosis during the intervening 8-year follow-up period. None of the 18 patients without evidence of basic symptoms at index examination were found to have developed psychosis in the intervening period. The analysis was able to predict the presence or absence of transition to schizophrenia accurately in 77% of individuals, whilst psychosis was falsely predicted in 23% of the sample. Therefore the development of schizophrenia was predicted with a specificity of 45% (the percentage of patients who had not shown basic symptoms and had not shown transition to schizophrenia) and a sensitivity of 100% (the percentage of individuals with basic symptoms who had shown transition to schizophrenia). The basic symptoms which best discriminated between the groups at outcome were cognitive thought disturbances such as pressure of thought, interference of thought, tendency to delusion of reference, disturbance in thought initiative, and disturbance in receptive speech. These

disturbances in cognition were associated with disturbances in perception including the experience of being captivated by details of perception. Cognitive perceptual disturbance was also associated with problems in the perception of olfactory, gustatory and tactile stimuli.

Thurm & Haefner (1988), Healy (1990), and Birchwood (1995) all emphasise the role of the individual's perception and experience of subtle changes in cognitive, perceptual and information processing as being critical to the development and evolution of psychosis itself. These proposals have been based on the phenomenological evidence attesting to subjective experiences in schizophrenia described by a number of authors (Bowers, 1968; Chapman & McGhie, 1963; Conrad, 1958; Cutting, 1985; Freedman & Chapman, 1973; Freedman, 1974; McGhie & Chapman, 1961). Indeed, as early as 1963, Chapman & McGhie recommended that individual psychotherapy should focus on eliciting the experience of cognitive dysfunction and assist the individual in labelling and understanding these experiences. Indeed, Boker et al. (1984) investigated naturally occurring coping strategies associated with the experience of these basic disorders. They examined 40 inpatient individuals with schizophrenia during their acute episode. Basic disorders were elicited using the Frankfurt Complaint Questionnaire (Sullwood, 1977), which gives four subscales (1) Disorders of normally automatic skills, (2) Perceptual disorders, (3) Depression, anhedonia, and (4) Stimulus Overload. Furthermore a semi-structured interview was undertaken to elicit consciously undertaken efforts at compensation for these disorders. Reporting of compensatory efforts were common (nearly 75%) amongst participants.

Indeed there was a highly significant relationship between awareness of subjectively experienced basic disorders and active problem solving orientated coping strategies, but not strategies such as avoidance or withdrawal. Most of the coping strategies reported by participants were active problem solving based ones, as opposed to more passive strategies such as avoidance or withdrawal. Such experiences were interpreted by many participants as "danger signals". In this sense the subjective experience of cognitive and perceptual dysregulation, is by no means a passive experience. Individuals actively attempted to make sense of their experience, and pursue coping strategies to ameliorate these experiences.

3.5 Psychological Models of Psychotic Symptoms

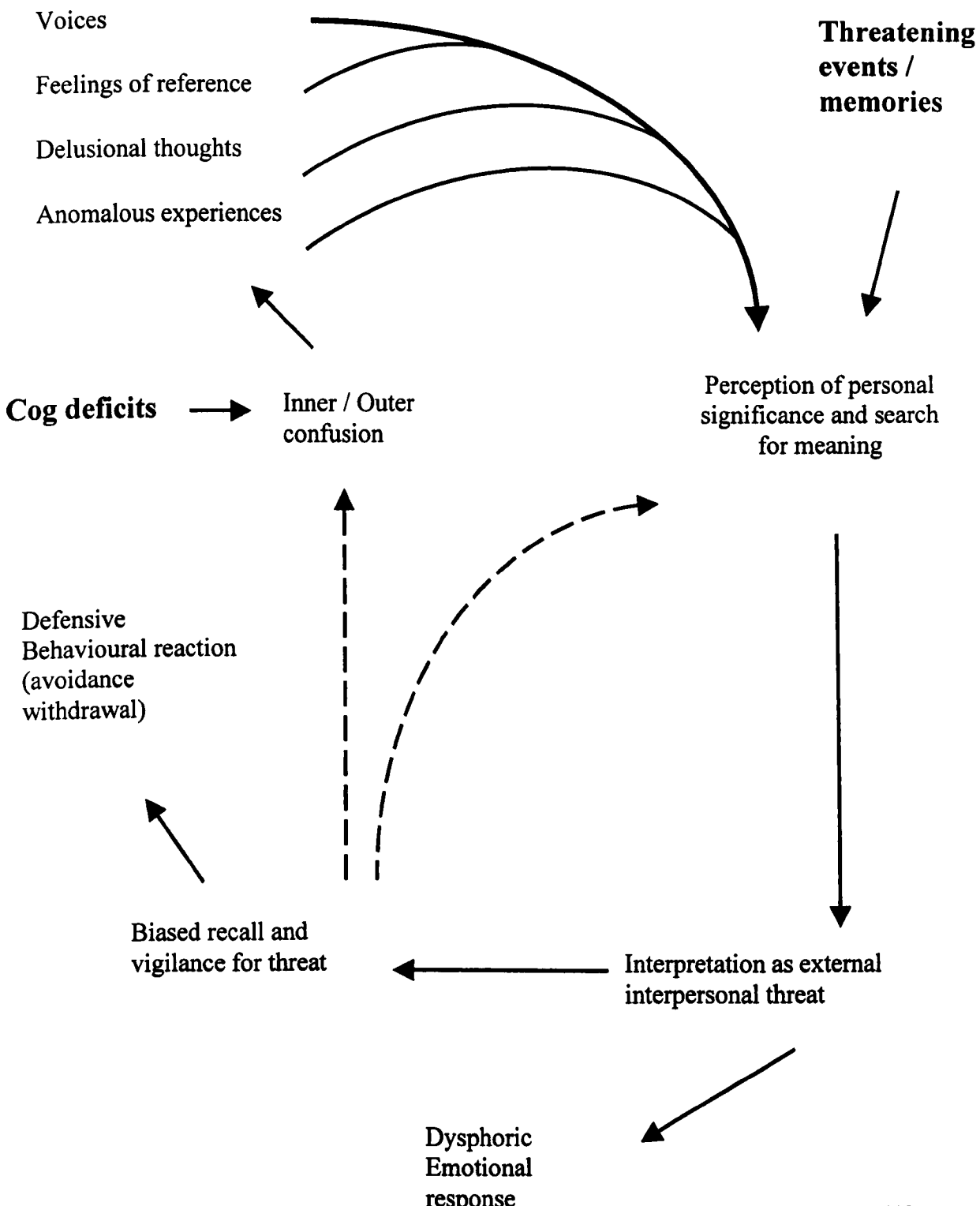
Fowler et al., (2000) propose a cognitive model of the development of acute psychosis, and indeed cite experimental evidence that difficulties in source monitoring may underlie the subjective experience of psychosis. Unlike Birchwood's (1995) model, Fowler and colleagues emphasise their model as one, which explains the evolution of psychosis itself. Psychosis is assumed to arise in the context of a vulnerable predisposition (of bio-psycho-social origin) and triggers to the onset of psychosis are assumed to include factors such as life events or drug misuse. There may be different types of vulnerability, triggers and stresses for different individuals. Their model emphasizes that individuals' routes into psychosis are idiosyncratic, and that complex psychotic symptoms can be regarded as thoughts, beliefs, emotional reactions and behaviours. The model implies that by careful assessment, it may be possible to trace the evolution of such cognitions from their formation as

premorbid beliefs. Subsequent beliefs about self, others and psychosis are then assumed to be shaped by the appraisal of stressful life events, anomalies of experience, early psychotic symptoms, and early and subsequent experiences of psychosis and its treatment. This model is illustrated in Figure 3.3 below. The model implies that there are two types of trigger into psychosis; anomalies of experience, and the experience of bio-psycho-social stress. Anomalous experiences are proposed to arise from source monitoring problems leading to inner/ outer confusion. The model assumes that this confusion is the common pathway that underpins the experience of psychotic experience (hallucinations, delusions and thought disorder). This pathway is described as confusion in distinguishing between experience, which is internally generated (e.g. thoughts, memories, hopes, and fears) and experience that is externally generated (sensations, perceptions of events in the world). Confusion of this type has been described by various researchers as a problem of reality monitoring (Bentall, 1990), self-monitoring (Hemsley, 1993, 1998), metacognition (Frith, 1992), source monitoring (Morrison, 1999) and autonoetic agnosia (Keefe et al., 1999). First, Fowler et al (2000) propose that source-monitoring problems may be associated with impairments in automatic cognitive processes, which have been commonly observed amongst individuals with schizophrenia (Frith, 1992; Hemsley, 1998). Specific support for this proposal is described by Keefe et al., (1999) who found that individuals with schizophrenia had general rather than specific difficulties in distinguishing sources of information, and that this deficit was not associated with specific psychotic symptoms. Second, unlike cognitive deficits, cognitive biases arise from and are shaped by psychological processes such as beliefs

and expectations. Bentall et al. (1991) and Morrison & Haddock (1997) have found experimental evidence for the role of cognitive bias and source monitoring in hallucinations.

Fig 3.3 Maintenance of threatening reactions to Psychosis

(From Fowler et al., 2000)



3.5.1 Hallucinations

Attribution theory (Weiner, 1985) has been helpful in developing psychological models of hallucinations and delusions. Attributional models of hallucinations conceptualise an auditory hallucination as a mental event that is misattributed to an external source. This hypothesis has been supported by various studies which have shown that individuals with hallucinations demonstrate a bias toward assuming a voice had been presented when it had not (Bentall, 1996). Indeed, Slade & Bentall (1988) demonstrated that individuals with hallucinations are more inclined to judge a perceived event as real and make rapid and over-confident judgements about their perceptions. Bentall's (1990) cognitive model of hallucinations incorporates the concept of 'metacognition': the process whereby individuals are able to reflect upon their own experience and mental processes. Bentall argues that in normal reality discrimination, individuals determine the source (internal or external) of a perceived event by non-consciously applying a set of criteria, such as the properties of the event, contextual cues, and expectations. Factors that may influence application of these criteria include environmental stimulation and style of information processing. Therefore, individuals will hallucinate when they wrongly infer that internally generated cognitive events such as thoughts are externally generated stimuli. This misattribution may be influenced by environmental factors (e.g. overstimulation) leading to high arousal and shallow information processing of stimuli caused by high stress. Furthermore, the misattribution of an aversive cognitive event to an external 'non-self' source may be negatively reinforcing through arousal reduction. This process may be influenced by the individual's own schemata about self, world and

future. Such schemata will influence individuals' expectations, interpretation and emotional response to both internal and external events (Padesky & Greenberger, 1995)

Morrison et al (1995) have elaborated a cognitive model of auditory hallucinations which proposes that auditory hallucinations arise from an attributional bias. Morrison et al.'s model draws on existing cognitive conceptualisations of intrusive thoughts (Rachman, 1978). Intrusions are defined as repetitive thoughts, images or impulses that are unacceptable or unwanted and are usually accompanied by subjective discomfort. Salkovskis (1985) hypothesizes that such thoughts are also ego-dystonic; i.e. they are incompatible with the individual's own belief system. Salkovskis & Kirk (1997) hypothesize that the occurrence and content of intrusive thoughts in obsessive compulsive disorder, are interpreted by individuals as meaning that they might be responsible for harm to themselves or others unless they take action to prevent it. It is the appraisal of responsibility, therefore, which is central to the development of distress. This results in attempts to suppress or neutralize the intrusive thought. Morrison et al., (1995) note that there is a similarity in the content of intrusions and auditory hallucinations. Thus it is argued that the occurrence of auditory hallucinations is accounted for by the result of an attributional process whereby individuals misattribute ego-dystonic, unwanted, and uncontrollable thoughts to an external source thereby leading to reduced distress. Cognitive dissonance theory (Festinger, 1957; Bouvois & Joule, 1996) states that dissonance results when two cognitions contradict each other. Therefore when positive thoughts are inconsistent with

the individual's own beliefs about self, dissonance will result. An attribution to an external source (resulting in an auditory hallucination) will reduce dissonance. This would account for the experience of pleasant auditory hallucinations in individuals with negative self-schemata. Morrison et al also hypothesize that their theory may also be useful in explaining thought insertion, thought withdrawal, and thought broadcasting, which may be related to misattributions in response to uncontrollable and/or unwanted cognitive events.

Experimental support for this hypothesis is described by Morrison & Haddock (1997) who examined the cognitive processes underlying auditory hallucinations in an experiment which investigated delayed and immediate source monitoring for positive, negative and neutral verbal material. They found that individuals experiencing auditory hallucinations had an external attributional bias for their immediate thoughts, but not for their memories of those thoughts. This bias was not demonstrated in individuals with no auditory hallucinations but with other psychotic symptoms. This implies a bias in moment by moment source monitoring specific to auditory hallucinations. Morrison & Haddock also found that the emotional valence of verbal material was a significant factor, which influenced the bias in source monitoring. This is consistent with Bentall's (1990) and Morrison et al.'s (1995) theories which predict that emotional content of intrusions has a direct effect on their misattribution to an external source. Furthermore, Baker & Morrison (1998) found that negative metacognitive beliefs concerning the controllability of one's own thoughts was significantly related to the experience of auditory

hallucinations. Morrison (1999) proposed that negative metacognitive beliefs play a role in the maintenance of auditory hallucinations by increasing individual's internal attentional focus on unwanted cognitive events. Further evidence for this hypothesis was derived from an experiment examining a group of individuals predisposed to experience unusual visual and auditory perceptual aberrations (Morrison et al., 2000). Morrison and colleagues found that positive metacognitive beliefs were associated with these experiences, suggesting that an attentional focus based on an interest and fascination with one's own thoughts was associated with the reporting of these perceptual aberrations.

Chadwick & Birchwood (1994) have studied individual's beliefs about voices in relation to their emotional and behavioural responses to voices. Using an ABC framework they formulated voices as activating events (A) and found that there was cognitive content specificity in that voices believed (B) to be malevolent were associated with negative affect and were always resisted (C), whereas voices believed to be benevolent were associated with positive affect and were engaged with. In a latter study of 59 voice hearers, Birchwood et al., (2000) examined the relationship between individuals' appraisal of power and social rank in relation to their voices, in addition to parallel measures of power and rank in wider social relationships. This study builds on ongoing research by Birchwood and colleagues who have examined models of social cognition and 'ranking' theory in relation to post psychotic depression (Iqbal et al., 2000). Ranking theory (Gilbert & Allen, 1998) predicts that stimuli perceived as powerful and threatening, activate defensive and self protective responses,

including submissive and escape behaviour; resistance to malevolent voices would be an example of this. According to social ranking theory, subordination to another arises from a process of social comparison serving the formation of social rank. Social rank not only involves a comparison of relative strength and power, but also social attractiveness and talent, and perceived belonging with a social group. Birchwood and colleagues found that the difference in rank between the voice and voice hearer is mirrored in social rank differences between self and others. This effect was maintained after controlling for depressed mood. Therefore measures of rank and power were not an artefact of mood linked appraisal. It was not possible to determine whether the appraisal of rank determined individuals' beliefs about voices and their level of depression, or if perceived social rank was an outcome of the experience of psychosis itself. Fowler et al., (2000) have proposed that psychological vulnerability arising from pre-morbid negative beliefs about self, and world shape the evolution of negative cognitions and beliefs associated with psychosis itself, and indeed becoming "stuck in psychosis" may be due to the way in which individuals' appraise and then develop attributions or beliefs about psychotic experience.

3.5.2 Delusions

Attributional models have also been utilized to explain the development of delusions. Maher (1988) hypothesizes that delusions are formed by the same cognitive processes as normal theories and beliefs, and evolve as an explanation of puzzling anomalous experiences. Like Morrison et al.'s (1995) formulation of hallucinations, Maher's theory incorporates the concept of

cognitive dissonance. When a discrepancy occurs between an expected sequence of events and an observed sequence of events, this leads to a sense of puzzlement and perplexity. The adoption of a delusional explanation which accounts for personally significant and/or anomalous experiences is accompanied by a reduction in tension and uncertainty (Maher, 1988). However this model can be criticized on the grounds that abnormal cognitive processes have been demonstrated in individuals with delusions (Garety, & Hemsley, 1994). Garety and Hemsley proposed a multifactorial account in which past experience, affect, self esteem, and motivation can play a role in the development of some delusions, while other delusions may arise from biases in judgement and attention. Garety (1991, 1992) proposed one factor, which may account for delusional development is a tendency to 'jump to conclusions'. Garety et al., (1991) found evidence of jumping to conclusions in individuals with delusions where these individuals are excessively influenced by current information, and make less use of past learned regularities in making inferences. This finding has been replicated by a number of investigators (Huq et al., 1988; Mortimer et al., 1996; Dudley et al., 1997a,b; Peters et al., 1997; Fear & Healy, 1997), reviewed by Garety & Freeman (1999). However when participants are asked to make probability estimates, individuals perform more like controls and the jumping to conclusions bias disappears. Garety & Freeman (1999) propose that these findings indicate that there appears to be a bias towards early acceptance of conclusions or hypotheses, as opposed to a deficit in probabilistic reasoning and hypothesis testing. Garety (1991) also found an apparently contradictory bias in other individuals with paranoid delusions, which was a tendency to rely

excessively on prior expectations when processing new information. These contradictory biases are accommodated in her model of delusional formation (Garety & Hemsley, 1994). Garety proposes that these two judgmental styles may reflect two stages of response to an information processing abnormality. In this model the initial process of delusional formation arises from the excessive reliance on current perception. The resulting delusional belief will then generate strong expectations, which influence affective state and attention to 'belief' congruent information.

Attributional processes associated with delusional beliefs have also been the focus of recent experimental investigation. Individuals with persecutory delusions seem to be more likely to attribute blame for negative events to external causes and positive events to internal causes (Kaney & Bentall, 1989; 1992; Fear et al. 1996). They also preferentially attend to (Bentall & Kaney, 1989) and recall (Bentall et al, 1995) threatening information. Kinderman (1994) found that individuals with persecutory delusions have a specific attentional bias for information of relevance to self-concept. It has been suggested that these experimental findings are consistent with the proposition that deluded individuals have negative self-schemata, which are experienced by the individual as a discrepancy between their actual and ideal selves. The model conceptualizes persecutory delusions as compensatory beliefs, which arise in response to this perceived discrepancy. This concept of delusional beliefs serving such a protective function has also been suggested for grandiose delusions.

Trower and Chadwick (1995) concur with the suggestions of Bentall and other investigators that persecutory delusions have a defensive function in that they are associated with low self esteem which is outside the individual's awareness. They have expanded this theory to encompass an interpersonal focus. They suggest that sources of threat are a solely interpersonal negative evaluation and that the defence, too, has this interpersonal focus in that it is an interpersonal evaluation of the other person which characterizes the paranoid 'defence'. They also suggest that paranoia can be divided into two types- persecution paranoia (the type researched by Bentall and others) and punishment paranoia. These two types of paranoia are held to be characterized by differing attributional styles which relate to how information is processed with reference to self. Punishment paranoia is hypothesized to be characterized by an attributional style where the individual attributes negative events to self and positive events to external causes. With punishment paranoia the individual believes that they are bad and blameworthy and that others are justifiably punishing them. The defensive function of punishment paranoia is less clear than in persecutory paranoia.

Most of the work on cognitive theory and therapy has emphasized the importance of conceptualising delusions with regard to core self-schemata. A number of psychological factors may play a role in the initiation, acceleration and maintenance of delusional beliefs. The initiation of delusions arises from the evolution of explanations for anomalous events, which are experienced as puzzling, confusing and discrepant with expectations. Central to the process of acceleration of these explanations is the appraisal of threat and the

reinforcement contingencies inherent in the adoption of delusional explanations. Individuals' core beliefs form a central reference point for the appraisal of threat. Gilbert (1997) argues that attacks on, and/or losses of social attractiveness are associated with shame and humiliation. Gilbert's model proposes that both shame and humiliation are associated with sensitivity to criticism, a desire to protect oneself, increased arousal, and complex affects. However shame and humiliation differ on a number of dimensions including attributional style, view of self, attentional focus, emotion, and behaviour. One could argue that the experience of shame or humiliation associated with attacks on or loss of social attractiveness is ontogenic in the development and acceleration of delusions. Humiliation, like persecutory paranoia, is characterized by an external attributional bias, where others are seen as bad and are blamed for negative events. In both humiliation and persecutory paranoia there is a strong sense of injustice and the individual is more likely to react to negative events with anger and hostility. On the other hand, both shame and punishment paranoia are characterized an internalising or self blaming attributional style, where self is seen as bad and blameworthy of negative events. Shame and punishment paranoia are both associated with heightened self-consciousness, and no obvious sense of injustice. Individuals are more likely to react with depression, submissiveness and withdrawal. Both shame and humiliation are associated with differing evolutionary strategies aimed at the maintenance of private social attractiveness (humiliation) or public social attractiveness (shame). The maintenance of private and public social attractiveness may be implicit in the defensive functions of persecutory and punishment paranoia. This is not currently addressed within current

psychological conceptualisations of psychosis.

3.6 Theoretical Conceptualisation of Relapse

Gumley et al., (1999) proposed a conceptualisation of relapse (see Figure 3.4 below), which like Fowler et al., (2000) emphasised the personal significance of the experience of psychosis. According to this model, the occurrence of a pattern or configuration of internal and/ or external events which have a strong similarity with previous relapses will access negative beliefs concerning self and self in relation to psychosis more rapidly than if the configuration has a lower similarity. The activation of negative appraisals of psychosis derived from previous experiences of psychosis will initiate the process of relapse. A primary source of information for a relapse configuration is internal information on body state and arousal (Tarrier & Turpin, 1992), and cognitive-perceptual change (Neuchterlein & Dawson, 1984; Frith, 1992). Indeed, feelings of lack of control over cognitive and perceptual processes during relapse have been reported by a number of authors (Bowers, 1968; Freedman & Chapman, 1973; Donlan & Blacker, 1975). There are three implications of this analysis.

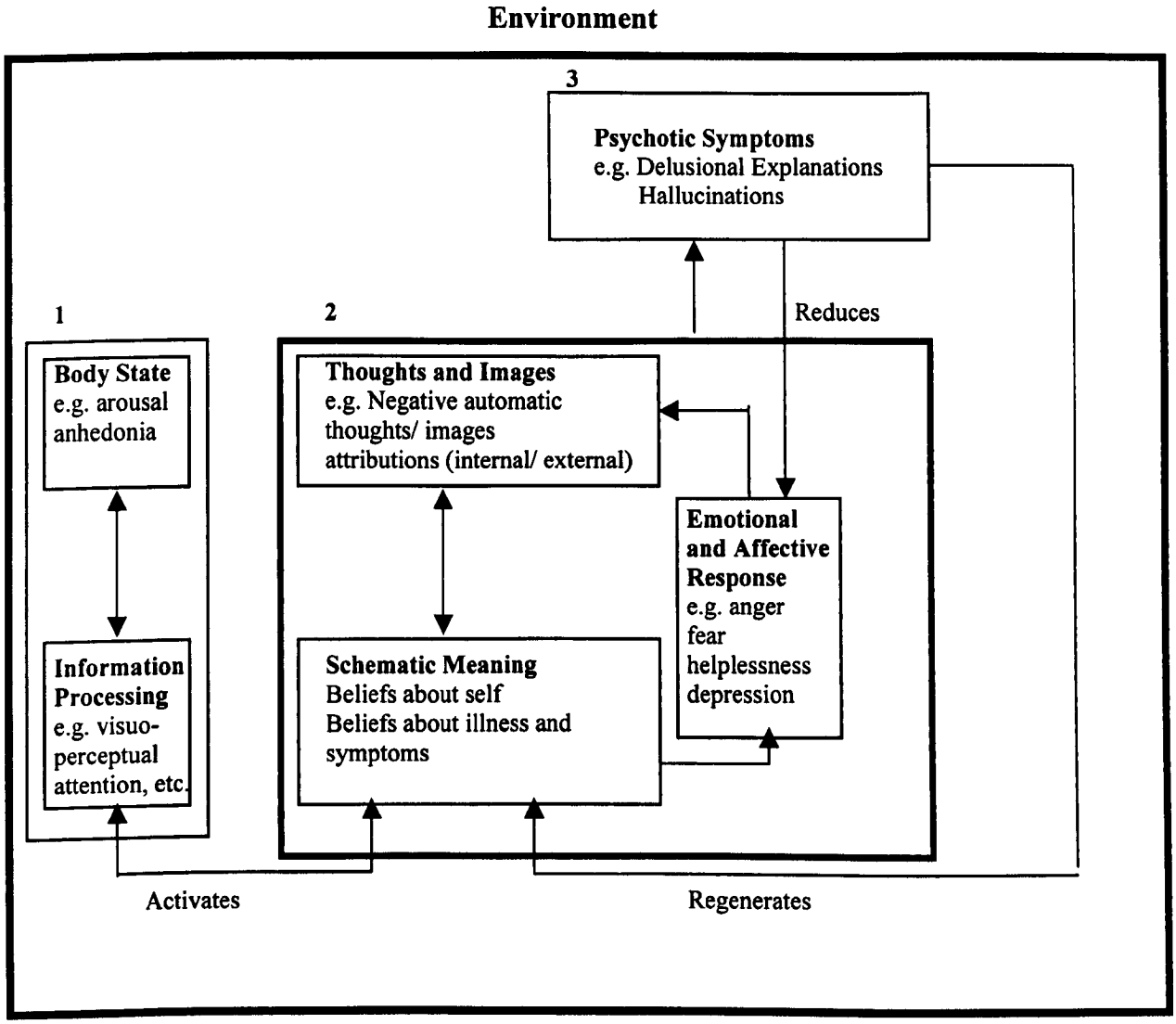
First, definitions that are currently used to capture sensitivity of early signs could well benefit from definitions more closely allied to how individuals appraise their experience of psychosis rather than relying on a more closely delineated set of individual signs and symptoms alone. For example, for an individual a combination of signs and symptoms such as increased sleep disturbance, reduced attention and concentration and increased agitation may trigger negative beliefs concerning the control of (e.g. "I can't control my

illness"), or consequences of relapse (e.g. "I'll let everyone down", "I'm a failure"). If the clinician pays sole attention to the occurrence of specific signs and symptoms, they risk failing to capture the central meanings experienced by the individual. Therefore, configurations of early signs which are more closely allied to the schematic meanings activated during early relapse may increase sensitivity, and reduce the apparent variance in the nature and timing of experiences signaling future relapse. Second, the activation of negative beliefs concerning illness results in a range of negative automatic thoughts, distressing emotions, and safety behaviours, which may lead to the acceleration of relapse. Therefore the activation of negative beliefs about self, and self in relation to illness constitute the central engine responsible for relapse acceleration. Interventions targeted on these beliefs during the early relapse phase may therefore be effective in preventing or ameliorating relapse.

This model attempts to illustrate the process of initiation, acceleration and maintenance of relapse. Box 1 to 2 illustrates the relationship between early symptomatic changes in body-state and information processing and how these changes activate schematic meanings. Within Box 2, the activation of these negative beliefs form the central engine of relapse leading to a range of negative automatic thoughts and distressing emotions. The development of psychotic symptoms (Box 3) serves to reduce some of the emotional and affective experiences produced by this engine. For example, externalising attributions for negative external events (leading to paranoia) or negative internal events (leading to voices) serve significant defensive functions, such as the preservation of an already vulnerable self-concept. The process of

maintenance is hypothesised to be accounted for through the continuing regeneration of schematic meanings illustrated in the direct relationship between psychotic symptoms (Box 3) and negative beliefs (Box 2).

Figure 3.4 Model of Relapse (from Gumley et al., 1999)



Persistent reactivation of negative beliefs about self and illness will present as increased chronicity and resistance to treatment, whereas intermittent reactivation will present as a relapsing course with periods of remission. A range of factors may be responsible for this process of reactivation including a

range of internal or external experiences, which have special and specific psychological significance for individuals. This model may provide a useful means of identifying and preventing early treatment resistance by guiding clinicians in their conceptualisation of the interaction between the individual and their beliefs, their experience of psychosis, and the subsequent development of secondary beliefs about self, illness, environment and future. These beliefs are likely to have their basis in the early episodes of psychosis. Indeed, Jackson and Birchwood (1996) refer to the first few years of psychosis as the critical period. It is this period, which sees the emergence of secondary co-morbidity and treatment resistance. This period can be characterized by high levels of traumatisation (McGorry et al., 1991) and negative consequences associated with reduced social attractiveness, status and rank.

3.7 Cognitive Behavioural Therapy for Relapse

Gumley et als.' (1999) model predicts that there are long term and short term vulnerabilities to relapse in psychosis. First, negative underlying beliefs about self will increase an individual's vulnerability to responding to the early stages of relapse with increased fear, depression, shame, and helplessness. Second, specific and covert early symptoms such as changes in perception, attention and cognition which have psychological significance, will activate implicational models of self in relation to illness, for example beliefs concerning entrapment, shame, humiliation, loss and blame will have a state mediated role in the acceleration of relapse.

Consequentially, CBT could work to reduce relapse by the systematic

identification and transformation of negative beliefs concerning self, and self in relation to illness. In addition, the model outlined above predicts that short-term vulnerability to relapse is mediated by the activation of implicational models of illness. Therefore delivering CBT during the early stages of relapse would provide an opportunity to transform such beliefs "in vivo". This would be much akin to the way in which CBT is delivered for other problems, for example, Panic Disorder.

3.8 Summary and Conclusions

There is growing evidence that CBT in combination with antipsychotic medication is effective in the treatment for individuals with schizophrenia. In particular its efficacy in the reduction of positive symptoms has been demonstrated (Tarrier et al., 1993; Drury et al., 1996a,b; Kuipers et al., 1997; Tarrier et al., 1998; Pinto et al., 1999; Sensky et al., 2000). However, the evidence for CBT in the treatment of affective symptoms and in the prevention of relapse is less certain (Tarrier et al. 2000; Tarrier et al., 2001). Empirically there is strong evidence for a link between affective symptoms and relapse reviewed in Chapter 2. In light of this, psychological models of co-morbidity and of relapse were considered. In relation to co-morbidity, there is strong evidence that post-psychotic depression is related to negative beliefs about blame, entrapment, humiliation, shame and loss associated with illness (Iqbal et al., 2000).

Psychological models of relapse (Thurm & Haefner, 1987, Birchwood, 1995; Gumley et al., 1999) emphasise that individuals' prior experience and current

attributions or beliefs about psychosis are potentially key factors in the development and acceleration of relapse. In addition, Fowler et al., (2000) propose that vulnerability to developing threatening reactions to psychosis arises from an interaction between premorbid beliefs, assumptions and experiences, and the subjective experience of psychosis. In this analysis, individuals with a history of trauma, low self-esteem etc, will be psychologically vulnerable to negative illness course. Furthermore, psychological models of psychotic symptoms emphasise attributions (e.g. Bentall, 1990; Morrison et al., 1995), negative beliefs (Chadwick and Birchwood, 1994; Birchwood et al., 2000), biases in reasoning and judgement (Garety & Hemsley, 1994), and attentional biases (Kinderman, 1994).

Given that there is considerable evidence to suggest that psychological factors play an important role in the initiation, acceleration, and maintenance of psychosis, CBT could be employed as an individually tailored strategy, with the aim of preventing or ameliorating relapse. Chapter 4 will now outline a treatment protocol for CBT for relapse based on the review contained within this chapter.

Chapter 4

Targeting Cognitive Behaviour Therapy for relapse: A treatment protocol

4.1 Cognitive Behavioural Therapy (CBT) for Psychosis

Existing treatment manuals of CBT for psychosis emphasise the psychological treatment of positive symptoms, negative symptoms and co-existing anxiety and depression (Kingdon & Turkington, 1994; Fowler et al., 1995). These manuals detail specific relapse prevention strategies delivered towards the end of treatment. Kingdon & Turkington emphasise the identification of stressors, which may trigger relapse, the development of a relapse profile which include signs and symptoms indicative of relapse, and the development of a range of response options, for example medication adherence, seeking help, and coping skills developed during treatment. Fowler et al., provide specific strategies, introduced at the end of therapy, aimed at addressing social disability and risk of relapse. These strategies are embedded in the development of a normalising rationale and a personal formulation of the individual's illness experience. The aim of this phase is to establish hope, develop medium term and long term goals, and address any continuing misconceptions regarding diagnosis. Reattribution strategies are specified to reduce self-blame associated with social disabilities. For example, individuals may blame themselves, or feel blamed for negative symptoms. Provision of education regarding negative symptoms is utilised to correct any misconceptions. In addition, individuals are encouraged to actively participate in the management of their illness. The importance of using medication, and the use of strategic avoidance during times of increased stress or symptoms are highlighted.

4.2 Theoretical background to CBT for relapse

Given that relapse in schizophrenia is often associated with adverse events, individuals will frequently recall their experiences of relapse as being traumatic and distressing. For example, McGorry et al., (1991) found that 35% of their participants displayed symptoms consistent with Post Traumatic Stress Disorder 11-months following their first episode. Many cited their hospital admission as a major cause of their traumatic experience. Meyer et al., (1999) found that the symptoms of acute psychosis were stronger predictors of traumatic reactions, than the use of coercive measures to implement and provide treatment (e.g. compulsory hospital admission). Indeed the first and subsequent episodes will be associated with substantial feelings of loss (Erikson et al., 1999), disappointment, fear, shame and humiliation (Jackson & Iqbal, 2000). Furthermore experiences of hospital admission and subsequent treatment can be confirmatory of these feelings. For example, previous attempts at help seeking may have resulted in adverse consequences for the individual such as increased side effects due to increased medication or emergency admission to hospital.

MacGlashan (1987) has proposed that individuals' coping, as part of their recovery from psychosis, can be characterised on a continuum between "sealing over" and "integration". Sealing over is characterised by a coping style where individuals isolate their experience of psychosis. The experience tends to be viewed as alien and incompatible with their life experience and goals. Individuals who seal over tend not to explore their experiences but maintain awareness of the negative aspects of psychosis. On the other hand,

integration is characterised by an awareness of continuity between life experience and psychosis. Individuals who integrate tend to be explore their psychotic experience, and are more likely to take responsibility for their thinking during psychosis. Jackson et al., (1998) found that those individual's who sealed over and refused psychological intervention were less likely to be aware of, or accept their disorder, but were also less likely to be depressed. Sealing over may therefore represent an attempt to deny and avoid reminders of illness, and given the advantage for reduced depression, has adaptive qualities. Jackson & Iqbal (2000) suggest that the impact of psychosis can be understood with reference to trauma theory (e.g. Janoff-Bulman, 1992) and propose that psychosis can act to undermine or indeed "shatter" pre-existing assumptions about self, world and future, or indeed, for those who have experienced early adversity, psychosis may confirm premorbid beliefs concerning personal vulnerability and negative evaluation. Drayton et al., (1998) found that those individuals who seal over or deny significant aspects of their illness were more likely to view their early experience of parenting as less caring, than those who were categorised as integrators. In this sense, sealing over may represent a marker of psychological vulnerability arising from the interaction between early experience and psychosis, as proposed by Fowler et al., (2000).

An alternative conceptualisation of integration and sealing over which may explain the interaction between the individual and their psychosis, and the behavioural, cognitive and emotional consequences of psychosis are the processes of "assimilation" and "accommodation". Assimilation refers to the

process whereby information is altered and distorted to fit into pre-existing beliefs. Accomodation on the other hand involves changing existing beliefs to accept new information. Hollon and Garber (1988) propose that accommodation is necessary for successful integration of a traumatic event. Resick and Schnicke (1993) has also proposed that trauma interacts with individuals' pre-existing beliefs concerning self, world and future, and that in response to a trauma individuals may reject their pre-existing beliefs (overaccomodation), or distort the trauma to fit with their pre-existing beliefs (assimilation). Overaccomodation involves a radical change in underlying beliefs and assumptions, for example an individual who viewed themselves as competent and safe prior to psychosis, may view their illness as highly dangerous, and as meaning they have no control. This would therefore give rise to high levels of fear concerning relapse. Assimilation, on the other hand, represents an individual's attempt to preserve their pre-existing beliefs, despite their experience of psychosis. For example the same individual, may use cognitive strategies aimed at minimisation (e.g. "It didn't happen", "It happened because I wasn't eating properly") or behavioural strategies aimed at avoidance. Whilst this strategy may lead to reduced depression in the short run, the cost may be a corresponding reduced awareness of relapse risk, excessive and unnecessary avoidance, and reduced control of illness in the longer run.

The processes of assimilation and overaccomodation can also explain the development of shame and humiliation attributions following psychosis and the development of secondary depression. For example, an individual who

believes "good things happen to good people, bad things happen to bad people" may respond to the experience of their psychosis with overaccomodation (e.g. "It doesn't matter what I do, bad things will happen to me") leading to increased helplessness and hopelessness, or assimilation (e.g. I must have done something wrong to have deserved this") leading to increased self blame and shame. According to this formulation, what is critical is the interaction between the individuals' pre-existing beliefs concerning themselves, the world and future, the occurrence of psychosis as a critical incident, and the individuals' attempt to assimilate or accommodate their experience.

4.3 Overview of CBT for relapse

A description of a treatment protocol for the use of CBT in relapse prevention has been detailed in Gumley and Power (2000) and is summarised below. CBT for relapse is divided into two phases. An engagement phase is delivered over 5-sessions. A targeted phase is delivered at the appearance of early signs of relapse.

Phase one of CBT for relapse focuses on engagement and formulation of the key psychological factors and early signs that might be associated with initiation or acceleration of early relapse. Phase one begins with an explanation of the cognitive model of relapse, which emphasises the occurrence of early signs of relapse, and the triggering of negative beliefs concerning relapse. An explanation of the potential role of these beliefs in accelerating relapse is given. Individuals are encouraged to test this model of

relapse through the exploration of previous experiences of relapse. During the examination of previous relapse experiences, individuals and therapist collaboratively identify negative beliefs concerning self and illness experience and the historical antecedents of these beliefs. This procedure enables the development of an individualised case formulation of the cognitive factors and their associated early signs involved in relapse acceleration. At the end of this intervention phase, both individual and therapist construct an idiosyncratic early signs monitoring questionnaire, and it was agreed to monitor these early signs on a fortnightly basis. A detailed description of the individualised early signs monitoring procedure is available in Tait et al., (2002). Every two weeks individuals' questionnaires are dispatched by post. Individuals are instructed to complete and return their questionnaires using a stamped addressed envelope enclosed for their use.

There were two main routes to the initiation of Targeted CBT. First, an assessment for targeted CBT was initiated if there were increases in individuals' self-reported early signs. Prior to the initiation of this assessment, the therapist liases with the individuals keyworker in order to, where appropriate, discuss and co-ordinate any possible interventions. Second, if individuals' keyworkers report symptom changes or circumstances/ stressors, which are suggestive of an increase in relapse risk, an assessment for Targeting is initiated.

Session one of Targeted CBT involves a detailed assessment of the evidence of and against emerging relapse. The purpose of this assessment is twofold (1)

to identify potential false alarms, and (2) to provide a test of the case formulation developed during the engagement phase. The therapist collaboratively elicits negative beliefs concerning relapse, and these beliefs are prioritised according to their importance and associated distress rated by the participant. In order to reduce individuals' fear or helplessness associated with early relapse, early signs are reframed as an opportunity to develop mastery over an apparently uncontrollable and inevitable process.

Where early relapse is associated with non-adherence with prescribed medication, positive and negative beliefs about adherence and non-adherence are elicited and summarised. Where individuals wish to continue to avoid medication, they are encouraged to treat their non-adherence as an opportunity to conduct an experiment with not taking medication. Anticipated benefits and problems are considered. Where problems are anticipated, the implementation of existing or potential coping skills is discussed, and assistance is given to individuals in rehearsing and implementing these. In addition, as part of this experimental approach to treatment thresholds for reinitiating medication are agreed.

In other circumstances, the negative beliefs associated with relapse are examined. Alternative beliefs of relapse as a controllable process are developed in collaboration with the individual. These alternative beliefs are tested using within and between session behavioural experiments. Behavioural experiments involve strengthening existing coping skills or developing novel coping strategies. The outcomes of experiments are then used as evidence for

and against alternative beliefs concerning relapse. Emphasis is given to developing strategies to counter ruminative withdrawal, avoidance, criticism from others, and the use of alcohol and illicit drugs. In addition, cognitive and behavioural strategies are employed to reduce intrusive cognitive phenomena such as flashbacks to previous episodes.

Targeted CBT is terminated when early signs have reduced to baseline levels. Targeted CBT is concluded by a review of strategies employed during treatment, and an examination of the evidence for and against participants' negative beliefs and their alternative beliefs concerning relapse.

4.4 Therapist Style

A key assumption of CBT for relapse is that the development of beliefs concerning relapse have arisen from traumatic or distressing illness experiences, and individuals' beliefs about their illness are adaptive to that experience. This has immediate consequences for the therapist and therapeutic alliance. The therapist may encounter hostility or suspiciousness regarding the focus on relapse, depending on the individual's previous treatment experience. The therapist therefore adopts a supportive, empathic, and validating approach. The therapist makes frequent summaries to check for accuracy of understanding. Careful assessment of negative treatment experiences is made; in particular negative experiences concerning relapse, emergency or compulsory admissions to hospital are elicited. The therapist adopts a non-judgemental role, balancing validation of the individual's experience without making evaluative statements regarding other service providers.

4.5 Assessment and engagement

Assessment and engagement is conducted over 5-sessions. The aim of the assessment and engagement phase is the development of a therapeutic alliance, the identification of barriers to early intervention, the development of an early signs hypothesis informed by cognitive behavioural formulation, and the engagement in early signs monitoring. The initial interview is crucial to the identification of individuals' principal concerns and problems related to relapse, and potential barriers to engagement as described below. The therapist makes a careful assessment of the individual's view of their experience, their attitude to their illness, and their readiness to discuss their experience and symptoms.

4.6 Identification of Barriers to Engagement

Early in the process of engagement, the therapist should consider a number of specific potential barriers to engagement. These possible barriers include the individual's style of coping (for example, minimising or denying significant aspects of illness experience), the presence of traumatic reactions to psychosis, and the development of shame and self blaming attributions concerning illness. Clearly, whilst these factors might act as barriers to engagement, they are also relevant to the development of an individualised formulation of relapse, including the identification of factors which may act against early and prompt intervention.

4.7 Formulation

Formulation is of central importance within CBT. It provides the individual and therapist with a guide to the key cognitive behavioural factors involved in relapse, and attempts to make sense of the pattern of early signs experienced during the early stages of relapse. The experience of acute psychosis as a critical incident lies at the centre of the case formulation approach for targeted CBT. It is proposed that the beliefs and assumptions, which arise from this experience, represent the individual's attempts to accommodate and assimilate their experience, and that these beliefs may represent an enduring cognitive vulnerability to relapse. The Cognitive Interview for Early Signs (Figure 4.2) provides a prototypic guide and summary to the processes involved in the development of the formulation. During this process the therapist's skills in pacing and being alert to subtle changes in mood, eye contact and behaviour are most important. This is because the individual is being asked to recollect previous episodes of acute psychosis and hospitalisation. This interview utilises cognitive techniques to facilitate the development of an early signs hypothesis. Gumley et al's., (1999) model of relapse predicts that the activation of negative beliefs about self and illness serve to accelerate the transition into acute psychosis. Therefore this interview aims to elicit important beliefs and assumptions which may be relevant to relapse by identifying specific memories associated with previous episodes. The individual and therapist may choose to focus on the last episode of psychosis or another which may have more personal significance to the individual, for example the first or second episode.

Figure 4.1 Interview procedure for eliciting early signs

Cognitive Interview for Early Signs

ESTABLISH DATE OF LAST RELAPSE

ESTABLISH ONSET OF EARLY SIGNS

CHOOSE EVENT DURING PERIOD BETWEEN ONSET OF EARLY SIGNS AND RELAPSE

Prototypic questions:
When talking about your last relapse is there a particular memory that comes to mind?
At what point did this occur?
Are their other events, which come to mind?

ESTABLISH TIME LINE FOR EVENTS IN RELATION TO ONSET OF EARLY SIGNS AND RELAPSE

ESTABLISH EVENT ASSOCIATED WITH 'HOT' COGNITIONS

Prototypic questions:
Which of these events distresses you most?
If only one of these events occurred which would have been the most upsetting?
Why is that?

ELICIT MEMORIES AND IMAGES ASSOCIATED WITH THE EVENT?

Prototypic questions:
What was so upsetting about that?
Are there thoughts and images, which come to mind?
Can you describe these?

GUIDED DISCOVERY TO ESTABLISH MEANING

What does that event mean to you?
What was the worst thing about that?

ELICIT COGNITIONS RELATED TO SELF, AND SELF IN RELATION TO ILLNESS

What does it say about your illness?
Do you still think that?
How does it make you feel about your illness?

LINK EVENT AND MEANING THROUGH COGNITIVE, PERCEPTUAL, AND PHYSIOLOGICAL EXPERIENCE

When you think about that now how do you feel? (Probe cognitive, perceptual and physical experience?
What do / did you notice about your thoughts?
What do/ did you notice about your body?

FORMULATE AND SUMMARIZE BY LINKING EVENT, INTERNAL EXPERIENCES, BELIEFS AND EMOTIONAL/ BEHAVIOURAL SEQUELAE

TEST CONFIGURATION OF SYMPTOMS AGAINST PREVIOUS EPISODES AND ADJUST AS NECESSARY.

The therapist and individual construct a time line between the onset of early signs and the initiation of acute psychosis on which relevant and personally significant events are "pegged" to the process of relapse. Birchwood et al., (2000) have described similar methodology. However, extending this methodology, the therapist collaboratively elicits and prioritises, in terms of personal significance, events that the individual considers critical in the development and evolution of relapse. That is those events, which define the meanings that they attach to becoming unwell. Guided discovery is used to uncover the significance that the individual attaches to these memories, for example, "I have lost control" or "I've let others down". These beliefs are then linked to their associated cognitive, emotional, behavioural and physiological sequelae, for example fearfulness, shame, avoidance, increased tension and sleeplessness. The configuration of symptoms elicited associated with personal meanings is the used as a basis for the early signs hypothesis. This hypothesis can then be tested and evaluated by comparing the configuration and timing of symptoms in relation to previous episodes of relapse. The information gathered by the therapist and individual is then used to develop an idiosyncratic early signs questionnaire. Relevant beliefs and assumptions are included in this scale in order to help "bind" the apparent variance in symptoms.

4.8 Explaining beliefs

Beliefs are regarded as arising from the individual's attempts to either assimilate or accommodate their experience of psychosis with their pre-existing beliefs and assumptions. These beliefs act like rules, which contain

predictions about the significance and consequences of internal or external events. Accordingly, the occurrence of experiences reminiscent of previous episodes of psychosis will have implicational meaning for the personal relevance of these beliefs. For example, during the early stages of relapse physiological changes including increased tension in the head, neck and shoulders might be experienced as if their head is growing out of proportion to their body. Their beliefs about this experience, for example, "I'm loosing control", "people will start staring at me", "I'm vulnerable", "People attack folk who look vulnerable" are elicited. The impact of these beliefs on relapse can be explained with reference to systematically identifying their disadvantages or consequences.

Th: You told me when you feel your body changing, you begin to think that you are loosing control, that your vulnerable, and that people will harm you. When you think that how does that make you feel?

P: I get frightened. I can't think properly and I can't go out.

Th: What frightens you most?

P: It's the thought of not having control. I need to have control or I'll become unwell and end up in hospital.

Th: Is there anything else that frightens you?

P: It's the thought of looking like a freak. People will see and will attack me. I won't go out, unless it's really late at night.

Th: Is there anything else you do when you feel like that?

P: I can't sleep at night. I clean all the time to keep my mind off things but I keep thinking about it. I have to check myself in the mirror. It's

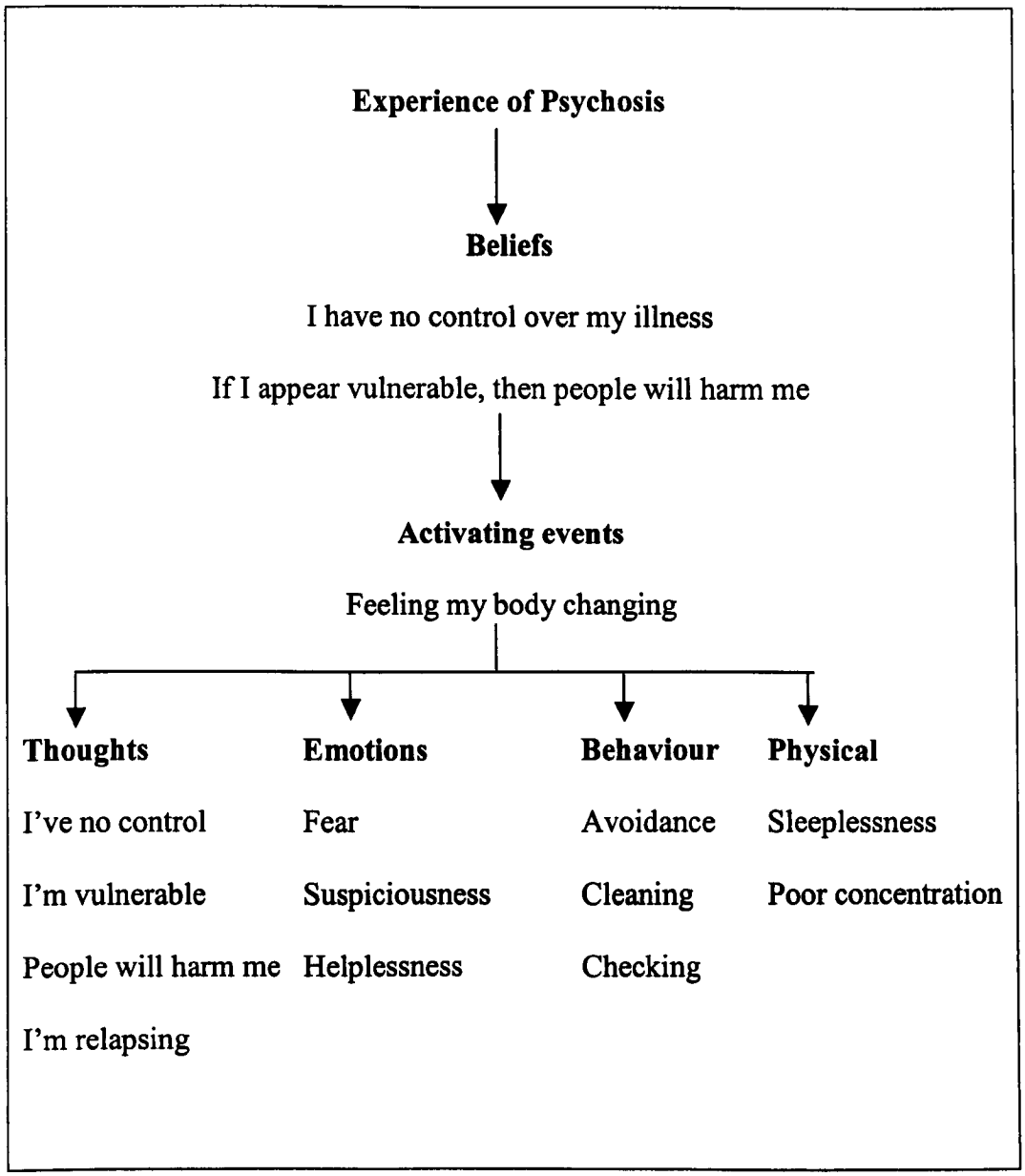
> got really bad before. I remember feeling this pain in my stomach. I thought there was an animal inside me, and it was going to eat itself out.

The trauma associated with the experience of psychosis, in this example, is self-evident. This individual describes the implicational meaning of changes in her body. These changes are associated with strong beliefs concerning control and vulnerability to harm by others. Indeed these core themes are continued and contained in the evolution of delusional beliefs associated with their acute psychosis. The formulation of this example is contained in Figure 4.2 below. The formulation is the key means of communicating the relevance of beliefs in relation to personal experience and the acceleration of relapse. This formulation also contains the key early physiological, emotional, behavioural and cognitive signs of relapse, described diagrammatically to assist the individual in making sense of the process of relapse.

4.9 Early Signs Monitoring

The formulation of an early signs hypothesis informs the development of an individualised early signs questionnaire, which integrates the cognitive, emotional, behavioural and physiological factors which characterise the evolution of relapse. Individuals are asked to complete their early signs questionnaire on a fortnightly basis. Early signs questionnaires are dispatched by post with a stamped addressed envelope for use by individuals. Targeted CBT for relapse is initiated following an increase in early signs suggestive of relapse.

Figure 4.2 Case Formulation for Targeted CBT



4.10 Targeted Cognitive Behaviour Therapy

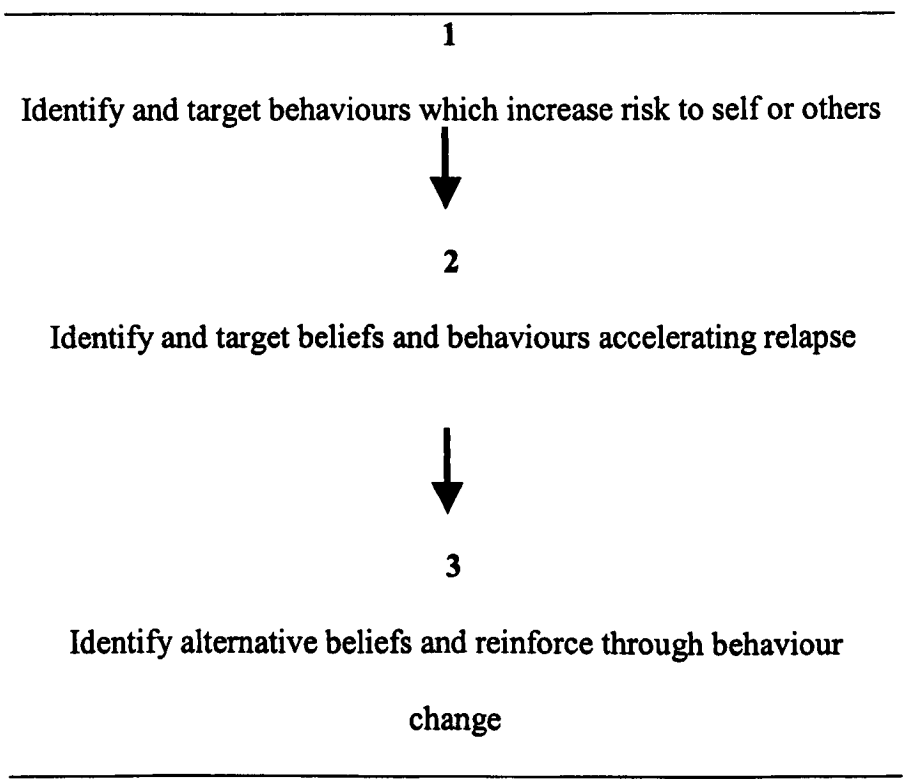
Targeted CBT is a brief intervention delivered during the early phase of relapse. Given the nature of relapse, the opportunity for intervention is limited. Therefore the strategies employed during treatment are designed to (a) minimise risk, (b) reduce the speed of the relapse process, thereby (c) increasing the window of opportunity to prevent the occurrence of a relapse. Targeted CBT is initiated when there has been an increase in early signs of

relapse or if there is evidence of psychosocial stressors which are likely to confer increased relapse risk, for example, the loss of a loved one or being assaulted.

4.10.1 Order of treatment tasks

Treatment tasks are prioritised at the beginning of targeted CBT according to the careful assessment and identification of evidence of risk of harm to self and / or harm to others. Once these priorities have been addressed treatment can move to addressing other treatment priorities. The general order of treatment is illustrated in Figure 4.3 below.

Figure 4.3 Order of treatment tasks



4.10.2 The Initial Interview for targeted CBT

The initial interview begins with a brief review of the individual's early signs, and the identification of any other problems or symptoms, including checks for risk of harm to self or others. The therapist and individual prioritise problems identified in the review for the session's agenda. Problems and symptoms identified in the review are examined in relation to concerns regarding relapse. The evidence for and against relapse is considered in relation to the formulation developed during the assessment and engagement phase. In addition, given that relapse is likely to be associated with heightened arousal, high levels of fear and anxiety, and catastrophic thoughts, the therapist takes particular care in pacing the initial and subsequent targeted sessions. The pace of the session is deliberately slowed in order to identify salient beliefs, and indeed to provide a model of a non-catastrophic reaction to emerging relapse.

4.10.3 Testing the formulation

A critically important therapist task at the beginning of targeting is the identification of evidence for and against emerging relapse. This procedure has three functions including (a) the careful assessment of relapse risk, (b) assisting the individual in taking perspective on their experience, and (c) clarification of the relapse hypothesis. This procedure also provides an opportunity for the therapist and individual to critically evaluate the accuracy of their formulation. This test can be undertaken using a number of strategies. First the accuracy of the formulation can be evaluated by comparing the nature and pattern of current early signs, with those predicted by the formulation

itself. Second, variations between expected and current experience are examined in terms of the individual's appraisal of their early signs in terms of their current beliefs about relapse, and their recollections of previous relapses. Third similarities between current and prior experience can also be evaluated.

4.10.4 Decatastrophising Relapse

During the initial session the therapist prioritises any catastrophic beliefs concerning relapse. This is an important clinical priority, as catastrophic beliefs will increase physiological arousal and fear, thereby accelerating the speed at which a potential relapse progresses. A number of techniques can be useful in decatastrophising relapse. First, relapse can be reframed as an opportunity for new learning. In particular, historical evidence concerning delayed intervention for relapse can be employed to underline the current opportunities, which may arise from early intervention. On the other hand, previous experiences of failed early intervention can be examined in terms of identifying additional procedures, which may have been helpful. Second, the therapist can further work with the individual to highlight the advantages and disadvantages of early intervention. The results of this can be compared to previous experience. Third, the therapist can elicit experiences where individuals have sought help and / or employed coping skills, which have prevented or reduced the severity of relapse. Evidence of this can be discovered, by asking the individual to recall previous experiences where early signs have been experienced without a subsequent relapse. Whilst this procedure allows the therapist to evaluate the probability of the current episode being a false positive, it also enables the identification of particular

coping skills employed by the individual, which have been helpful. Fourth, the therapist remains vigilant throughout for evidence of increased affect. Evidence of increased affect within session is explored by the therapist in order to elicit other negative beliefs concerning self, illness, others and future which may be relevant to relapse, or acting as barriers to reframing relapse itself.

4.10.5 Contracting intervention

At the end of the initial session, targeted CBT is contracted on the basis of the evidence collected concerning relapse probability. The rationale for CBT is made on the basis of the accuracy of the original or adapted formulation, which provides a focus for targeting key beliefs and behaviours, which seem to be relevant to the relapse process. For example, in explaining the rationale, it can be useful to feedback the relationship between the catastrophic thoughts which have arisen from negative experiences, and the acceleration of increased fear, arousal, and sleeplessness. The use of metaphor can be helpful, where the relapse process is compared to an engine that becomes engaged by frightening thoughts, memories, and beliefs, which increase the speed of unpleasant emotions and feelings. By learning new or strengthening existing coping strategies, this engine can be slowed down, or disengaged. The purpose of the metaphor also enables the introduction of realistic hope of increased control over relapse.

4.11 Subsequent sessions

4.11.1 Identifying the most emotionally salient beliefs

As described, the therapist remains vigilant for any changes in affect, and follows changes in emotion as signals that a particular belief is active. Changes in emotion provide an opportunity to gently enquire about any thought and / or images that the individual is experiencing. Ascertaining the meaning of events is a crucial procedure. Whilst increased emotion and distress is an obvious consequence of early relapse, the meaning of the event needs to be established. An example of this process is illustrated below.

Th: You look distressed just now. What is the worst thing about what you are experiencing?

P: I don't know. I'm so confused, I can't think properly; it's all too much for me.

Th: You feel confused, you can't think properly, and it feels too much. *(Summarise to slow pace)* Which one of those things upset you most?

P: It's not being able to think. It's like there's nothing I can do. Everything feels out of control. I'm scared that I'll get unwell.

Th: I can see why you feel so distressed (*therapist provides validation*). When you feel confused and unable to think properly, this means that you feel you can't do anything, that you have no control, and that you will become unwell. Have I got that right? (*Check for accuracy*)

P: Yes, (*tearful*) I have no control over what's happening. That's what it's like (*relapse*). It's like something just takes over me, everything speeds up, and I can't do anything about it.

Making specific enquiries about the nature and presence of imagery can be helpful in ascertaining the meaning and psychological significance of early relapse. Given that relapse experience can be traumatic, the therapist needs to be aware of evidence of intrusive imagery in relation to previous events, and that individuals' may describe images in an over general manner (cognitive avoidance). An example of this process is given below.

Th: You say that you've been thinking about the last time you were unwell. Is there a particular aspect of that memory that sticks in your mind?

P: I remember my Mum shouting at me. She was screaming; it didn't make any sense. I could hear the voices. They were mad too. The noise wouldn't stop.

Th: Can you see that in your mind as your speaking?

P: (*Looks away*) I could hear the voices. They were telling me how bad I am. My Mum's face was red. I can see her eyes. She looked really angry. She was shouting, but I don't know what she was saying.

Th: What does that image mean to you?

P: I've let her down again. I'm a disappointment to her. I'm no good.

Th: In this image you can see your Mum shouting, you remember the voices, but you don't know what your Mum was saying. This image means something to you which is distressing, that is that you've let her down, that you're no good, and that you're a disappointment. Is this how you think about yourself when you're worried about relapse?

P: Yes, its like if I get unwell, then I've let her down again.

The therapist is careful and supportive in eliciting key thoughts, beliefs and images, which occur during relapse. It is important for the therapist to ensure that they have a reasonable sample of cognitions in order not to miss any salient concerns. However, the vast number of thoughts and images, which occur during early relapse can, understandably, be overwhelming to both individual and therapist. This difficulty can be addressed by identifying the most salient cognition. Most simply this can be achieved by asking which thought or image is most upsetting. On the other hand careful documentation of thoughts, beliefs and images can then enable the therapist to invite the individual to systematically rate the distress associated with each. By this means the most salient cognition or cognitions can be identified. Furthermore, the therapist can undertake reliability checks by verifying the relationship between specific thoughts and the principal emotions, physiological reactions, and behaviours associated with the relapse process.

4.11.2 Introducing flexibility into beliefs

Beliefs during early relapse can be absolute, acting like unconditional core beliefs, for example, "I have no control", and "I am bad". Critical to the process of decelerating the speed of relapse is the introduction of flexibility into such beliefs through identifying situations where that belief is true or untrue. However, if the individual states that it is true in all situations, then the eliciting evidence for the belief can be used as a means of introducing flexibility. This evidence is then utilised to create conditions where the belief is true for the individual, thereby creating a conditional belief. An example of this process is given below.

Th: You say that you have no control. Can you tell me what makes that true for you?

P: My thoughts are going too fast, I can't think. I can't talk to people properly. There's nothing I can do.

Th: Are there other things that make you feel that you've no control?

P: Yes. Thoughts keep coming into my head (looks away), they're awful. It's like I've harmed someone. I can see my sister lying dead.

Th: How does that make you feel?

P: I'm doing something wrong, something bad is going to happen if I don't stop it.

Th: Let me see if I've got this right. Because your thoughts are going too fast, you can't think right, and awful thoughts keep coming into your mind this makes you feel that you have no control. Is that right?

P: Yes I can't stop what is happening in my head.

Th: So "If you can't stop what is happening in your head, then you have no control". Does that feel right to you?

P: Yes, that's it, it's what's going on inside my head that is so bad.

Here the therapist balances validation of the belief, with an enquiry into the conditions at activate the belief and make it "feel" true. Creating conditions attached to the belief facilitates the implementation of strategies to transform the belief. Some examples of conditional beliefs that are associated with relapse acceleration are given in Table 4.1 below. These beliefs bind the personal experiences of relapse (e.g. changes in thought, emotion, physiology,

cognition and behaviour) to consequences for self (e.g. loss of control, failure), world/ others (e.g. anger, punishment), and future (e.g. hospital admission).

Table 4.1 Conditional beliefs during relapse

If I relapse, then others will be disappointed in me.
If I loose control of my thoughts, then I'll relapse.
If I don't cope, then I will relapse
If I relapse, then I'll end up in hospital
If I tell someone I'm not well, then they'll be angry with me
If I get unwell, then I'll be punished
If I relapse, then I am a failure

4.11.3 Transforming beliefs

Given that a key assumption of targeted CBT is that the beliefs developed concerning relapse emerge as a result of negative experiences, these beliefs are seen as contextually adaptive. During this process the therapist may identify a number of conditional beliefs. This is dealt with by identifying which belief is associated with the strongest emotion, for example by rating each belief for the amount of distress associated with it. In addition, the therapist does not necessarily take a challenging approach to these beliefs. Rather, the therapist examines the evidence supporting these beliefs in order to establish their function for the individual. For example, the belief "If I do not control my thoughts, then I will become unwell" will result in a number of safety behaviours such as avoidance of situations that trigger intrusive thoughts, vigilance for changes in thinking, cognitive avoidance, or other thought

control strategies. The function of these safety behaviours is the control of thinking. Transforming beliefs involves establishing alternative assumptions that achieve the function (in this case control), without the costs associated with the former conditional belief. The therapist establishes the meaning of "control" and the parameters which determine control, for example whether perceived control governed by the individuals cognitive experience alone, whether there are other factors which influence perceived control, and importantly, whether there are alternative behaviours that can enhance the individual's sense of control. By identifying an alternative, or existing behaviour that enhances sense of control, this behaviour can be used to bind a new belief. The importance of using behaviour to transform and develop alternative beliefs is related to the subsequent use of behavioural experiments to test transformed beliefs. In this way the therapist does not challenge the logic or truth of the former belief, but works with the individual to develop alternative beliefs. An example of this process is given below.

Th: You say, "If I do not control my thoughts, then I will become unwell". Could you tell me how that belief is helpful to you?

P: It means I won't get unwell.

Th: Are there other ways this belief is helpful to you?

P: Well... I suppose it means that I feel better, I feel more in control of my head.

Th: OK, so this way of looking at your thoughts means that you're less likely to get unwell, you feel better and feel more in control. Is there anything else that is helpful about this belief?

P: I don't think so, but I never seem to feel better, and I get unwell anyway.

Th: OK whilst this belief can be helpful for you, it doesn't work all the time. Are there disadvantages to having to control your thoughts?

P: It's really hard, the harder I try the harder it gets. I worry about what I'm thinking, and I can't go outside because I might start getting upsetting thoughts, other people might notice. I get really depressed about it.

Th: So this is really hard for you, it leads you to worry about what you're thinking, worry of other people will notice, so you don't go outside, and you get really depressed. So rather than avoiding upsetting thoughts altogether, what if you felt as if you could cope better with upsetting thoughts? How would that be?

P: I'm not sure. I don't like getting these thoughts.

Th: (*therapist checks parameters of control*) All right so when you say that you would like to control these thoughts what do you mean by that?

P: Well I mean not get them at all, I should be able to control my thoughts all of the time.

In this example the therapist decides to address the belief that all thoughts should be controlled and provides some explanation of the difference between voluntary (e.g. planning a shopping list) and involuntary thoughts (e.g. negative automatic thoughts or intrusive thoughts in reaction to stress). Information is provided and discussed on the frequency of intrusive thoughts in the general population, and the role of thought suppression in producing

rebound (Wells, 1997). A behavioural experiment investigating the effects of thought suppression is conducted within the session by asking the individual construct an image of a banana in their imagination and then to avoid thinking about bananas. Once the belief that all thoughts should be controllable is addressed, the belief that "If I do not control my thoughts, then I will become unwell" can be addressed.

Th: So what kind of things help you feel more in control?

P: Talking to my friend helps, when I'm not upset I feel more in control, having a drink helps me as well.

Th: OK so what is it about these situations that make you feel more in control?

P: I feel more relaxed. I still get upsetting thoughts but they don't bother me so much.

Th: So what do you do in these situations when you get an upsetting thought?

P: I think about something else or I distract myself by doing something.

Th: So as a first step, rather than trying to abolish these thoughts altogether if you were able to ignore these thoughts what would that mean?

P: I suppose I wouldn't get so upset.

Th: And if you were less upset by them, what would that mean to you?

P: I'd feel better.

Th: So "If I can ignore unwanted thoughts, I will feel better"? Does that sound right?

At this point the therapist produces an alternative transformed belief, and as with the former belief (If I do not control my thoughts, I will become unwell), the therapist works with the individual to identify the advantages and disadvantages of this belief with respect to self and relapse.

4.11.4 Testing transformed beliefs

During the process of relapse individuals adopt a range of behavioural strategies aimed at increasing safety, preventing relapse or increasing control. For example common signs associated with early relapse include suspiciousness and vigilance, withdrawal and avoidance, use of alcohol and drugs. However, these "safety behaviours" may result in the acceleration of relapse, thus confirming individuals' beliefs concerning their helplessness, or the inevitability of relapse.

Behavioural experiments provide an ideal methodology of intervention during this process. Behavioural experiments enable the individual to achieve a behavioural change (e.g. implementing a coping skill), which results in a cognitive change (beliefs concerning self or illness). Behavioural experiments can be conducted within session and between session. Furthermore behavioural experiments can be also graded according to difficulty. During CBT for relapse behavioural experiments are targeted on the development of alternative behaviours practised across a number of situations beginning with coaching within session to applying between session and in-vivo. The example given below continues from the example described in Section 4.9.3 above. In this example the therapist had begun with the belief that "If I do not control

my thoughts, then I will become unwell" and with the individual had transformed this to "If I can ignore unwanted thoughts, I will feel better".

Th: Is there a way to test this belief out?

P: I'm not sure, what do you mean?

Th: Well, how could you find out if this belief is helpful to you or not?

P: I suppose that I could try it out and see what happens.

Th: OK that seems like a good idea. How could you do that?

P: Well the next time I get an unwanted thought, I could try to ignore it and do something else.

Th: What kind of problems might happen if you did that?

P: Well other people might see that there's something going on, and they might get upset or angry.

Th: OK, could anything else go wrong?

P: I could get upset anyway, and then it wouldn't work.

Th: All right then. There are two problems, first other people might notice and get upset or angry and you might get upset anyway. Why don't we try and address each of these in turn. Why don't you try this experiment without any other people around first, before trying it out in other situations. Maybe we could try it out just now?

As behavioural interventions are implemented and practised, these changes are consolidated through the review and examination of individuals' beliefs concerning the control, stigma, shame, and / or fear associated with illness.

The therapist aims to assist the individual in accommodating new information gained during intervention into pre-existing assumptions concerning illness, in comparison with the beliefs tested during treatment.

4.12 Summary and conclusions

This chapter has described a treatment protocol for the prevention of relapse in schizophrenia. This treatment protocol is based on the review of the literature developed in Chapter 3 of this thesis. At the centre of this treatment protocol is the targeting of negative illness appraisals arising during early relapse phase. It is proposed that these appraisals represent key cognitive factors, which accelerate the speed at which relapse, evolves. These appraisals have their origins in the initial episodes of psychosis and have been associated with the development of post psychotic depression occurring following the first episode (Iqbal et al., 2000).

It is hypothesised that delivering CBT using this protocol will result in reduced relapse, increased duration of survival without relapse, reduced severity of relapse, and reduced rates of admission to hospital. Chapter 5 provides a description of the methodology and results of a randomised-controlled trial evaluating the effectiveness of delivering this treatment protocol with treatment as usual compared to treatment as usual alone. Given that the treatment protocol targets negative appraisals of psychosis and the behaviours associated with their maintenance, it is also hypothesised that the prevention of relapse will result in increased rates of remission and improved social functioning. Chapter 6 provides a description of the outcome of this trial

in terms of these outcome variables. Furthermore, I have proposed that negative appraisals of entrapment, shame, humiliation and loss associated with having psychosis are activated by internal or external events at the initiation of relapse. Given that these appraisals are associated with the development of psychological morbidity (Birchwood et al., 1993, Iqbal et al., 2000), the impact of CBT for relapse on psychological distress is investigated in Chapter 7. Lastly, given my proposal that these appraisals play a role in the acceleration of relapse itself, Chapter 8 is an investigation of this hypothesis.

Chapter 5

A non-blind randomised-controlled trial of targeting cognitive behavioural therapy on relapse in schizophrenia: I. relapse outcome at 12-months

5.1 Introduction

Relapse in schizophrenia is a major factor associated with the development of residual symptoms, illness chronicity and social disability. Pharmacological studies demonstrate that maintenance antipsychotic medication is associated with reduced relapse rate when compared to placebo (e.g. Crow et al., 1986). In addition, maintenance medication is superior to intermittent medication in relapse prevention (Jolley et al., 1989; Carpenter et al., 1990; Herz et al., 1989). In addition, maintenance medication plus early signs monitoring supplemented increased antipsychotic medication on the appearance of early signs superior to maintenance medication without early signs monitoring. (Herz et al., 2000). It has also been proposed that psychosocial interventions, when combined with antipsychotic medication, could reduce the risk of relapse in schizophrenia (Linzen et al., 1998; De Haan et al., 1998).

Cognitive Behavioural Therapy (CBT) is one such intervention. CBT is a structured psychological therapy, which focuses on the identification and modification of problematic beliefs and behaviours that maintain and exacerbate specific difficulties. There is growing evidence that Cognitive Behavioural Therapy (CBT) is an effective treatment for individuals with schizophrenia. Five controlled trials of CBT for schizophrenia have been reported (Tarrier et al., 1993; Drury et al., 1996a,b; Kuipers et al., 1997; Tarrier et al., 1998; Pinto et al., 1999; Sensky et al., 2000). All these trials have involved providing CBT in conjunction with antipsychotic medication. Four of these trials have examined the efficacy of CBT for drug resistant positive psychotic symptoms (Tarrier et al., 1993; Kuipers et al., 1997; Tarrier

et al., 1998; Pinto et al., 1999; Sensky et al., 2000). One trial examined the efficacy of CBT delivered during the acute psychotic phase (Drury et al., 1996a,b). CBT has been found to be superior to waiting list control (Tarrier et al., 1993), routine care (Kuipers et al., 1997), structured activity and informal support (Drury et al., 1996a,b), supportive counselling and routine care (Tarrier et al., 1998). Pinto et al., (1999) found that when combined with clozapine, CBT was superior to supportive therapy in combination with clozapine. Sensky et al. (2000) compared CBT to a befriending condition and found that at the end of treatment phase both had equal efficacy, however at 9-month follow-up the CBT group had continued to improve, while those in befriending did not. Three CBT trials provide follow-up data at 9-months post treatment (Kuipers et al., 1998; Sensky et al., 2000), at 12-months (Tarrier et al., 1999), and 24-months (Tarrier et al., 2000). Kuipers et al., (1998) found that at 9-month follow-up those who had received CBT continued to improve, evidenced by significant improvements in delusional distress and frequency of hallucinations. Relapse rates at follow-up were not reported, although there was a non-statistically significant trend for CBT participants to have spent less time as psychiatric in-patients (Mean = 14.5 days versus 26.1days). Sensky et al., (2000) also did not report relapse rates at 9-month follow-up although the CBT group continued to improve on measures of positive symptoms, depression and negative symptoms, compared to the befriending control group who had lost most of the treatment gains made during the treatment phase. Tarrier et al. (1999) reported 12-month follow-up results for CBT compared to supportive counselling (SC) or routine care alone (RC). Participants in CBT continued to show significant treatment effects for both positive symptoms

and negative symptoms. Pairwise comparisons showed a significant effect for CBT over RC for positive and negative symptoms. There were non-statistically significant trends for positive and negative symptoms favouring CBT over SC. Unlike previous studies, Tarrier et al. did examine relapse rates pre-treatment and the 12-month post-treatment follow-up period (total duration = 15-months). A relapse was defined as a clinical deterioration or functional impairment, which resulted in a hospitalisation of five days or more, corroborated by casenote inspection. Of the original group of 87 participants, 70 were successfully followed up. Amongst this group there were the following relapse rates; CBT (6/23, 26%), SC (4/21, 19%) and RC (7/26, 27%). These differences were not statistically significant. Tarrier et al. (2000) reported on the two-year follow-up of 61 (70%) of participants randomised to treatment. At two years there were significant differences for both CBT and SC over RC for positive symptoms. There was no significant difference between CBT and SC groups. Again for negative symptoms both CBT and SC showed significant differences with RC, but there were no significant differences between CBT and SC. Time to relapse was examined using Kaplan-Meier survival curves for treatment groups. There were no significant differences between CBT and SC, and these groups were combined for comparison with RC. The number of relapses was greater in the RC group (11/28, 39%) compared to the combined group (13/59, 27%). There was not a statistically significant difference between these groups on duration to relapse.

Based on these findings there is strong evidence that CBT is effective in reducing the severity of psychotic symptoms resistant to medication (Tarrier et

al. 1993; Kuipers et al., 1997; Tarrier et al., 1998). When delivered during the acute phase, CBT is associated with improved rates of remission and increased speed of recovery (Drury et al., 1996a,b). Treatment gains associated with CBT are maintained at 9-months post-treatment (Kuipers et al., 1998; Sensky et al., 2000) and 12-months post-treatment (Tarrier et al., 1999). However, the differential effects of CBT on relapse rate are less clear, either because relapse rates are not reported by investigators (Sensky et al., 2000) or because broad definitions of relapse which rely on hospital admission statistics are described (Tarrier et al., 1999, Kemp et al., 1998; Tarrier et al., 2000). In addition, these CBT studies have symptom reduction as their main clinical outcome and not the prevention of relapse, which was a secondary objective of these studies. Therefore there is a need to examine the efficacy of CBT in the prevention of relapse. The author knows of no other study, which has examined the feasibility or effectiveness of targeting CBT on the early signs of relapse. Therefore, the present study is an investigation of the feasibility and effectiveness of targeting CBT during the appearance of early signs of relapse in schizophrenia. The treatment protocol is based on the proposal that relapse is accelerated by a number of psychological factors including individuals' attributions for their psychotic experience (Birchwood, 1995) and their negative beliefs about self, relapse and psychosis (Gumley et al., 1999). Two hypotheses were tested. First, it was hypothesised that, over 12-months, CBT plus treatment as usual (CBT + TAU) would be associated with reduced relapse rate, increased time to first relapse, and reduced severity of relapse in comparison to treatment as usual alone (TAU). Second, predictors of relapse and duration to relapse were examined. It was hypothesised that, controlling

for treatment received, that participants' with stronger negative beliefs about themselves and their illness would be more likely to experience a relapse during the 12-months, and experience a shorter duration to relapse.

5.2 Method

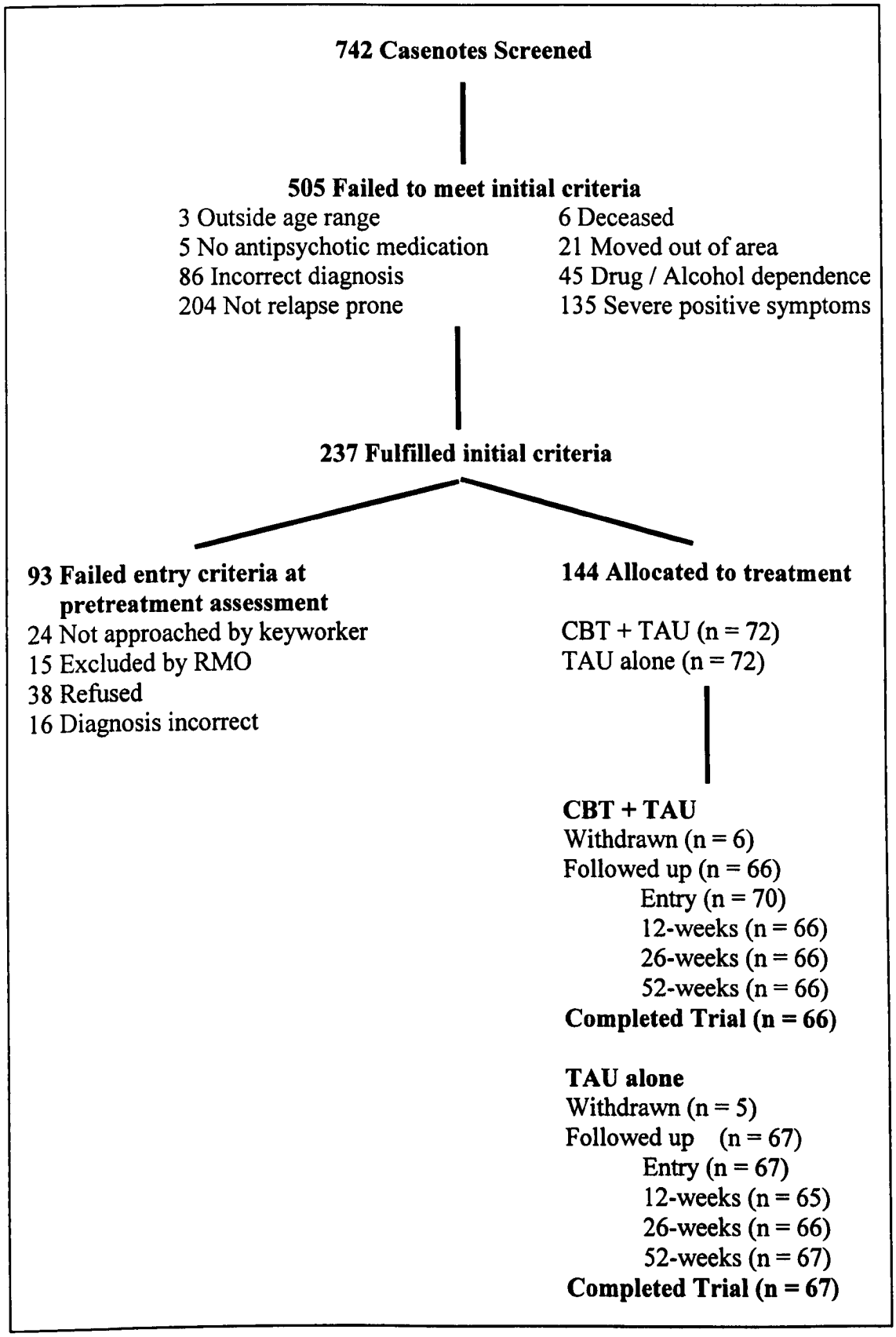
5.2.1 Design

This was a pragmatic clinical trial with random allocation and prospective follow-up over 12-months. The study compared treatment as usual alone (TAU alone) with Cognitive Behavioural Therapy plus TAU (CBT + TAU). The study was conducted between 1997 and 2000. The patients from the caseloads of 8 Community Mental Health Teams in the west of Scotland (6 in Ayrshire and 2 in Glasgow) were recruited into the study. The locality area for these teams includes a population of approximately 460,000 encompassing rural, suburban, and metropolitan areas. Inclusion required that patients fulfilled DSM-IV (American Psychiatric Association, 1994) criteria for schizophrenia or a related disorder confirmed by the Structured Clinical Interview for DSM-IV (First et al., 1994), were receiving antipsychotic medication and were considered as relapse prone. Diagnostic interviews were carried out by a Consultant Psychiatrist (MO'G). Patients were considered relapse prone if they had one or more of the following characteristics, (1) a history of relapse in the last two years, (2) living in a stressful environment (e.g. a home environment characterised by high levels of expressed emotion), (3) living alone or socially isolated, (4) non-adherence with antipsychotic medication (where this is viewed as problematic by the participant's keyworker and/ or prescribing psychiatrist), and (5) being on a neuroleptic

dosage reduction programme. Patients were excluded if they were a non-English speaker, had organic brain disorder, presence of significant learning disability, severe persisting positive psychotic symptoms (rating of 5 or more on the positive scale of the Positive and Negative Syndrome Scale; Kay et al., 1987), a primary drug or alcohol dependence disorder, or being in receipt of a concurrent psychotherapy outside the study. The sample size was calculated on the basis that a sample of 150 participants (75 per group), would have 80% power to detect at $p < 0.05$ a reduction in relapse/ exacerbation rates from 50% in the TAU alone group to 25% in the CBT + TAU group (Pocock, 1975).

Figure 5.1 shows that from the entire patient caseload of the 8 Community Mental Health Teams, 742 potential participants with a possible diagnosis of schizophrenia were identified. The casenotes of all these individuals were screened. A total of 505 individuals were deemed to be ineligible for the following reasons: 6 were deceased, 3 were outside the age range, 5 were not maintained on antipsychotics, 21 had moved out of area, 86 did not meet diagnostic criteria, 45 were deemed to be drug/ alcohol dependent, 135 were deemed to have severe drug resistant positive psychotic symptoms, and 204 did not meet criteria for being relapse prone. From the remaining 237 potential participants, 24 were not approached by their keyworker to discuss the research, 15 were excluded by the Responsible Medical Officer because of severe instability of the individual's condition, and 38 refused consent, and 16 failed to meet diagnostic criteria at formal entry assessment. The remaining 144 were randomised to the TAU alone and CBT + TAU treatment groups. All participants provided written informed consent.

Figure 5.1 Recruitment and allocation of participants



5.2.2 Withdrawals

The 144 participants were randomised to TAU alone or CBT + TAU treatment groups. Randomisation was by means of a predetermined schedule, unbeknown to the assessors, therapist or participants. Following the diagnostic entry assessment a member of the research tem opened an envelope that informed as to which group individual participants were to be allocated. Another member of the team witnessed this procedure, and the envelope was placed in the participant's casefile. From the 144 participants, who originally entered the study, 11 dropped out within 12-weeks after entry (6 from the CBT + TAU and 5 from the TAU alone). The final sample consisted of 133 (66 in the CBT + TAU and 67 in the TAU alone). Although the small numbers of withdrawals make comparison with completers difficult, the only significant difference between these two groups was that withdrawals had significantly higher levels of positive symptoms ($t = -3.4$, $df = 135$, $p = 0.001$).

Within the CBT + TAU group, three of the participants refused treatment, one participant relapsed and withdrew consent following the relapse, and two dropped out for uncertain reasons. In TAU two participants refused assessments and three dropped out for uncertain reasons. Therefore in order to err on the side of caution all 'drop-outs' were treated as relapsed, for the purposes of the intention to treat analysis for relapse outcome at 12-months.

5.2.3 Assessments

Assessments were carried out at entry, 12-weeks, 26-weeks and 52-weeks using a battery of measures. Repeated measures were the responsibility of two

assessors who were trained Community Psychiatric Nurses (LM & JR). These assessors were independent but not blind to treatment. Additional cover for these assessments was provided by a Consultant Psychiatrist (MO'G)

5.2.3.1 Positive and Negative Symptoms

The Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987, Appendix A) was chosen as the main outcome measure. The PANSS is a 30-item observer rated scale. Each item is rated on a severity scale ranging from 1 (absence of psychopathology) to 7 (extremely severe). The sum of the first seven items constitutes the positive scale score: delusions, conceptual disorganisation, hallucinatory behaviour, excitement, grandiosity, suspiciousness/ persecution and hostility. The sum of items 8 to 14 constitutes the negative scale score (e.g. blunted affect, emotional withdrawal). The sum of items 15 to 30 constitute the global psychopathology scale score (e.g. somatic concern, anxiety). The raters were trained using interviews with patients, either face to face or on video. Interclass correlations for the positive, negative and global subscales were 0.91, 0.87, 0.72 respectively and for the total score 0.80.

5.2.3.2 Medication

Given that both groups were being maintained on antipsychotic medication, it was important to exclude the possibility that differential improvement between CBT + TAU versus TAU alone groups was attributable to antipsychotic treatment. Therefore, data concerning maintenance antipsychotic medication were extracted from clinical records for the duration of the investigation. Total

dose of antipsychotic medication at each assessment was calculated as chlorpromazine equivalents in milligrams per day (Atkins et al., 1997). Type of antipsychotic medication was also noted.

5.2.3.3 Psychological distress

Psychological distress was measured using the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983, Appendix B). The BSI gives measures across nine symptom dimensions: somatisation, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. The BSI gives three global indices of distress: the Positive Symptom Total (PST), the Positive Symptom Distress Index (PSDI) and the Global Severity Index (GSI). The PST is simply a count of the symptoms which individuals report experiencing to any degree. The PSDI is an intensity of distress measure, corrected for the number of symptoms positively endorsed. According to Derogatis & Melisaratos (1983) PSDI functions as a measure of response style, communicating whether an individual is 'augmenting' or 'attenuating' distress in their manner of reporting. According to the authors, the GSI is the single best indicator of current distress levels. The GSI combines information on the numbers of symptoms reported, and the intensity of perceived distress associated with those symptoms.

5.2.3.4 Negative appraisals of psychosis

Negative appraisals of psychosis were assessed using the Personal Beliefs about Illness Questionnaire (PBIQ; Birchwood et al., 1993, Appendix C). The

PBIQ is comprised of 16-items rated on a four-point scale and assesses individuals' beliefs in five domains (Rooske & Birchwood, 1998): *loss* of autonomy and valued social role; *humiliation* and loss of rank arising from a belief in social segregation of those with mental illness; *shame*; *attribution* of behaviour during illness experience to self or to psychosis; and *entrapment* in or an inability to control psychotic experience. The scale has been demonstrated to have good reliability and validity with schizophrenia.

5.2.3.5 Negative appraisals of self

The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965, Appendix D) was selected as a measure of negative appraisals of self. The RSES is a ten-item self-report measure of self-esteem. The scale was originally developed as a measure to assess self-esteem in adolescents but has been widely used in adult populations. Rosenberg (1965) proposed a complex scoring system, which was simplified by Corcoran & Fischer, (1987). Items are in statement form, and respondents are asked to rate their agreement on a four point Guttman Scale (strongly agree to strongly disagree). The RSES gives a score range of 4 to 40, with higher scores indicating lower self-esteem.

5.2.4 Relapse Definition

Relapse data for all participants were collected prospectively with the exception of one relapse in the CBT + TAU group, which was identified retrospectively. Independent assessors confirmed relapses. Date of relapse was recorded as date of evaluation. Such data included, length of relapse (less than or greater than two weeks), hospital admission associated with relapse

(including compulsory admissions), the occurrence of adverse events (harm to others, harm to self, self-neglect) associated with relapse, and severity of relapse itself. Relapse severity was rated according to the criteria described in Table 5.1 below, and is similar to the methodology adopted by De Haan et al., (1998) to categorise relapse severity.

Table 5.1 Relapse Severity Ratings

Mild	A sustained return of positive symptoms for less than two weeks without hospital admission.
Moderate	A sustained return of positive symptoms for more than two weeks without hospital admission, Or Less than two weeks with a hospital admission.
Severe	A sustained return of positive symptoms for more than two weeks with a hospital admission.
Extreme	A sustained return of positive symptoms with a compulsory hospital admission.

In the present study the operational definition of relapse was based on participants' positive symptoms rated at entry on the positive scale of PANSS. Those who scored greater or equal to 3 on any one item of the positive scale of the PANSS classified as having residual symptoms; all other participants were classified as having minimal or no residual positive symptoms. Therefore, for those without residual symptoms, an increase in positive symptoms (rated 3 or more), sustained for at least one week, was defined as meeting criteria for a relapse. For those with residual symptoms, a 50% increase in the positive scale score, sustained for at least one week, was defined as meeting criteria for relapse. Tarrier et al., (1991) also used a 1-week time criterion as part of their definition of relapse.

5.2.5 Participants

Table 5.2 illustrates the baseline demographic and diagnostic characteristics of the two groups.

Table 5.2 Demographic, diagnostic and treatment characteristics by treatment group

Variable	CBT + TAU n = 66	TAU alone n = 67
Age (Sd)	35.8 (9.8)	36.8 (10.3)
Gender (%)		
Males	48 (72.7)	47 (70.1)
Females	18 (27.3)	20 (29.9)
Primary Diagnosis (%)		
Schizophrenia	53 (80.3)	56 (83.6)
Schizoaffective Disorder	12 (18.2)	8 (11.9)
Delusional Disorder	0 (0.0)	1 (1.5)
Schizophreniform Disorder	1 (1.5)	1 (1.5)
Psychotic Disorder nos	0 (0.0)	1 (1.5)
Type of Medication (%)		
Typical	29 (43.9)	29 (43.3)
Atypical	31 (46.9)	28 (41.8)
Clozapine	6 (9.2)	10 (14.9)
Medication equivalent to Chlorpromazine in mg (Sd)	404 (251.1)	362 (226.1)
Psychiatric contacts during 12-months (Sd)		
Medical	5.91 (3.08)	6.76 (4.10)
Nursing	27.81 (18.37)	27.54 (19.10)
Others	2.02 (5.92)	4.38 (9.80)

Table 5.3 summarises the baseline clinical and treatment characteristics for both groups. The overall sample comprised 133 participants, although on some of the measures there was a small proportion of missing data. No significant differences between the two groups were found, except that the CBT + TAU

had lower levels of self-esteem in comparison to TAU alone (t (126) = -2.1, p = .034).

Table 5.3 Clinical and history of illness characteristics by treatment group

Variable	CBT + TAU n = 66	TAU alone n = 67
Positive and Negative Syndrome Scale (PANSS)		
Positive	10.6 (2.9)	10.5 (2.7)
Negative	12.8 (4.5)	12.6 (5.3)
Global	31.3 (7.5)	29.3 (6.6)
Brief Symptom Inventory (BSI)		
Global Severity Index	1.3 (0.8)	1.0 (0.7)
Personal Beliefs about Illness Questionnaire (PBIQ)		
Self versus illness	9.3 (2.7)	8.8 (2.9)
Entrapment	10.1 (2.4)	10.1 (2.8)
Shame	7.4 (2.1)	7.0 (1.8)
Humiliation	4.4 (0.8)	4.6 (1.0)
Loss	7.7 (2.0)	7.4 (2.4)
Rosenberg Self-esteem Scale (RSES)		
	25.0 (6.1)	22.8 (5.4)
Duration of illness in months (sd)		
	113.8 (79.9)	111.8 (85.7)
No of relapses at 12 months pre-treatment (%)		
No relapse	32 (45.7)	29 (43.3)
One or more relapses	34 (54.3)	38 (56.7)
Hospital admissions at 12 months pre-treatment (%)		
No admission	42 (65.6)	30 (46.9)
One or more admissions	22 (34.4)	37 (53.1)

5.2.6 Treatments

5.2.6.1 Treatment as Usual

All participants continued to receive their ongoing usual treatment, which was overseen by the participants' own Responsible Medical Officer. The independent assessors (LM & JR) undertook regular monthly liaison with the participants' treatment team and monitored the progress of all participants. This enabled the prospective identification of relapse. This liaison included monthly attendance at team review meetings, attendance at participants' case management meetings, feedback on assessments, and feedback on progress of participants receiving CBT.

The core components of TAU entailed ongoing medication, regular psychiatric review, and regular follow-up from a keyworker, usually a Community Mental Health Nurse. All participants had access to a wider multidisciplinary community mental health team in addition to their regular follow-up. Table 2 illustrates that there were no significant differences between CBT + TAU and TAU alone in the number of community mental health service contacts participants had with medical staff, nursing staff and others (i.e. Occupational therapists, Mental Health Social Workers, and Clinical Psychology).

5.2.6.2 Cognitive Behavioural Therapy

A description of the treatment protocol has been detailed in Gumley & Power (2000), Chapter 4 (this volume), and is summarised below. A clinical psychologist (AG) provided all CBT sessions. CBT was divided into two

phases. An engagement phase was delivered between entry and 12-weeks. A targeted phase was delivered at the appearance of early signs of relapse.

Phase one of CBT, which was delivered over five sessions, focused on engagement and formulation of the key psychological factors and early signs that might be associated with initiation or acceleration of early relapse. Phase one began with an explanation of the cognitive model of relapse, which emphasised the occurrence of early signs of relapse, and the triggering of negative beliefs concerning relapse. An explanation of the potential role of these beliefs in accelerating relapse was given. Participants were encouraged to test this model of relapse through the exploration of previous experiences of relapse. During the examination of previous relapse experiences, participants and therapist collaboratively identified negative beliefs concerning self and illness experience and the historical antecedents of these beliefs. This procedure enabled the development of an individualised case formulation of the cognitive factors and their associated early signs involved in relapse acceleration. At the end of this intervention phase, both individual and therapist constructed an idiosyncratic early signs monitoring questionnaire. A detailed description of the individualised early signs monitoring procedure is available in Tait et al., (2002). On a fortnightly basis, a member of the research team dispatched the questionnaires to participants. Participants were instructed to complete and return their questionnaires using a stamped addressed envelope enclosed for their use. Early signs monitoring continued for the duration of the trial.

There were two main routes to the initiation of Targeted CBT. First, an assessment for targeted CBT was initiated if there was an increase in a participant's self reported early signs. Prior to the initiation of this assessment, the therapist liased with the participants keyworker in order to, where appropriate, discuss and co-ordinate appointments and any possible interventions. Second, assessors undertook regular monthly liaison with participants' treatment teams. Therefore, when treatment teams reported symptom changes or circumstances/ stressors, which were suggestive of an increase in relapse risk, an assessment for Targeting was initiated.

Session one of Targeted CBT involved a detailed assessment of the evidence of and against emerging relapse. The purpose of this assessment was twofold (1) to identify potential false alarms, and (2) to provide a test of the case formulation developed during the engagement phase. The therapist collaboratively elicited negative beliefs concerning relapse, and these beliefs were prioritised according to their importance and associated distress rated by the participant. In order to reduce participants' fear or helplessness associated with early relapse was reframed as an opportunity to develop mastery over an apparently uncontrollable and inevitable process.

Where early relapse was associated with non-adherence with prescribed medication positive and negative beliefs about adherence and non-adherence were elicited and summarised. Where participants wished to continue to avoid medication, they were encouraged to treat their non-adherence as an opportunity to conduct an experiment with not taking medication. Anticipated

benefits and problems were considered. Where problems were anticipated, the implementation of existing or potential coping skills was discussed, and assistance was given to participants in rehearsing and implementing these. In addition, as part of this experimental approach to treatment thresholds for reinitiating medication were agreed.

In other circumstances, the negative beliefs associated with relapse were examined. Alternative beliefs of relapse as a controllable process were developed in collaboration with the participant. These alternative beliefs were tested using within and between session behavioural experiments. Behavioural experiments involved strengthening existing coping skills or developing novel coping strategies. The outcomes of experiments were then used as evidence for and against alternative beliefs concerning relapse. Emphasis was given to developing strategies to counter ruminative withdrawal, avoidance, criticism from others, and the use of alcohol and illicit drugs. In addition cognitive and behavioural strategies were employed to reduce intrusive cognitive phenomena such as flashbacks to previous episodes.

Targeted CBT was terminated when early signs had reduced to baseline levels. Targeted CBT was concluded by a review of strategies employed during treatment, and an examination of the evidence for and against participants' negative beliefs and their alternative beliefs concerning relapse.

5.2.7 Statistical Analysis

All statistical analyses were carried out using SPSS for Windows (Version 10.0). Treatment effectiveness in relation to relapse, length of relapse, hospital admission, compulsory admission, adverse events and relapse severity rating was assessed using χ^2 for differences between categorical variables and *t* tests for differences between continuous variables. Changes over time in chlorpromazine equivalent dosage were analysed using repeated measures analysis of variance (ANOVA). *Post hoc* comparisons were made using the Sheffe test ($\alpha = 0.05$), or *t* tests where appropriate. The overall sample comprised of 133 participants, although on some of the measures there was a small proportion of missing data. To analyse differences in survival times between treatment groups, a Kaplan-Meier survival analysis was performed.

Predictors of relapse were also examined. Prior to analysis, checks for normality, outliers, collinearity, and multicollinearity were made. Daily chlorpromazine equivalence presented with moderate positive skewness (skewness = 1.144). For this variable transformed data have been used {NewX = SQRT (X)}. Five sets of factors entered the Logistic regression analysis. The order in which predictors entered analysis both as individual factors and as sets was: Treatment factors (treatment group, type of medication, dosage equivalent to chlorpromazine), demographic factors (age, gender), history of illness factors (duration of illness, history of relapse and history of admission at 12 months pre – treatment), clinical factors (PANSS Positive, PANSS Negative, PANSS General Psychopathology, BSI Global Severity Index) and psychological factors (RSES, PBIQ Self versus Illness, PBIQ Entrapment,

PBIQ Shame, PBIQ Humiliation, PBIQ Loss). Results are reported for significant predictors of relapse status.

Those variables found to be significant predictors using the logistic regression analysis were further examined using Cox Proportional Hazards Survival analysis (Cox, 1972). Time to relapse was coded in days from entry to the study. In addition to checks for normality, presence of outliers and multicollinearity, variables were also checked to ensure that the proportional hazards assumption of Cox regression was met. Cox regression assumes that the shape of the survival curve over time is the same for all cases, and as an extension, for all groups. Otherwise there is an interaction between groups and time in survival rates, or between other covariates (independent variables) and time. As this regression analysis involves a smaller sample of participants who relapsed the smaller set of covariate predictors derived from the logistic regression analysis were chosen for this analysis. Each covariate was transformed into a new variable (variable x the natural logarithm of the time variable). These log-transformed variables were entered to a Cox regression analysis, with the original variables. None of these log-transformed variables had a significant Wald value, indicating that the proportional hazards assumption was met. No further precautions were taken.

5.3 Results

5.3.1 Did CBT reduce relapse rate?

Relapse rates over 12 months were 10 (14.9%) relapses from the CBT + TAU group and 24 (35.8%) relapses from the TAU alone group. Differences in the

relapse rates between the two groups were significant (χ^2 (1) = 7.5, p = 0.006, Odds ratio = 2.36: 95% CI, 1.23 to 4.55). The intent to treat analysis, which includes those who did not complete the study categorised as relapsed (CBT + TAU = 6, TAU alone = 5), continued to reveal that the advantage for CBT + TAU (n = 16, 24.2%) over TAU alone (n = 29, 40.3%), (χ^2 (1) = 5.5, p = 0.02, Odds ratio = 1.81: 95% CI, 1.08 to 3.04). According to the intention to treat analysis, the Number Needed to Treat (NNT) to prevent one relapse in CBT + TAU is 8 participants. In terms of hospital admissions, there were 8 (11.8%) admissions in CBT + TAU versus 18 (26.9%) in TAU alone. This difference was also statistically significant (χ^2 (1) = 4.60, p = 0.032, Odds ratio = 2.22: 95% CI, 1.04 to 4.74, NNT = 10). Figure 5.2 illustrates the relapse-free survival curves for each group. Duration to first relapse was examined in the two treatment groups. Mean duration to first relapse for the CBT + TAU was 216 days (sd = 104 days) versus 158 days (sd = 101 days) for the TAU alone group. This difference was not statistically significant (logrank (1) = 2.4, p = 0.12).

5.3.2 Did CBT reduce severity of relapse?

Table 5.4 shows that there were no significant differences between CBT + TAU versus TAU alone groups in the proportion of mild, moderate, severe and extreme relapses. CBT + TAU was associated with a significant reduction in the duration of relapse itself (χ^2 (1) = 7.5, p = 0.006, Odds ratio = 0.17: 95% CI, 0.04 to 0.72). The length of relapse for half of the CBT + TAU group (n = 5, 50.0%) was less than two weeks, whereas for the TAU alone group 91.7% (n = 22) had a relapse lasting more than two weeks.

Figure 5.2

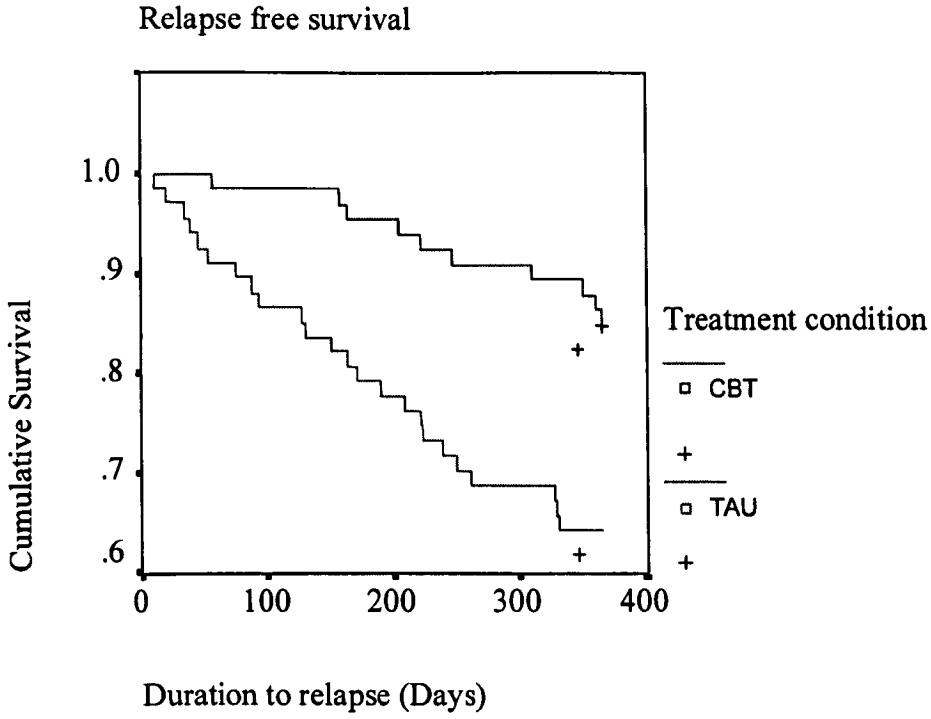


Table 5.4 Relapse Characteristics by treatment group

Variable	CBT + TAU n = 10 (%)	TAU alone N = 24 (%)	*Significance*
Length of relapse			χ^2 (1) = 7.5, p = 0.006*
Less than two weeks	5 (50.0)	2 (8.3)	
More than two weeks	5 (50.0)	22 (91.7)	
Compulsory admissions			χ^2 (1) = 0.0, p = 0.850
Yes	3 (30.0)	8 (33.3)	
No	7 (70.0)	16 (66.7)	
Adverse events			χ^2 (1) = 0.1, p = 0.763
Yes	7 (70.0)	18 (75.0)	
No	3 (30.0)	6 (25.0)	
Relapse severity rating			χ^2 (3) = 6.1, p = 0.107
Mild	2 (20.0)	0 (0.0)	
Moderate	1 (10.0)	7 (29.2)	
Severe	4 (40.0)	8 (33.3)	
Extreme	3 (30.0)	9 (37.5)	

**p < .01

5.3.3 Was CBT associated with increased false positives?

The question of whether CBT resulted in inflated rates of false positive relapse identification was examined. This is because overreacting to early signs might lead to increased false positive identifications to early relapse culminating in unnecessary intervention, and indeed the possibility of alerting participants to symptoms which do not herald relapse itself. The treatment received by participants who were randomised to CBT + TAU was examined. Of the 66 participants in CBT + TAU all received 5 hours of phase one of the intervention. Following an increase in early signs, 28 (42%) participants received targeted CBT (mean hours = 7.0, s.d. = 3.72). A total of 5 (7.5%) participants relapsed without receiving targeted CBT. Of the 28 participants who received targeting, 5 (7.5%) experienced a relapse.

Outcomes in CBT + TAU and TAU alone groups were coded according to those who relapsed ("Relapse"), those who did not relapse but received targeted CBT ("Targeted") and those who did not relapse and did not receive targeted CBT ("Stable"). There were no significant differences between rates of participants categorised as "Stable" (33 / 66) in the CBT + TAU group in comparison to TAU (43 / 67), (χ^2 (1) = 1.9, p = 0.164). This analysis suggests that whilst CBT + TAU was associated with a significant reduction in relapse rate in comparison to TAU alone, this does not appear to be at the expense of a statistically significant reduction in participants in CBT + TAU remaining "stable".

5.3.4 What was the impact of CBT on antipsychotic treatment?

Daily chlorpromazine equivalent dosages for participants in CBT + TAU and TAU alone are summarised in Table 5.5 below. There were no significant effects for time ($F(3, 390) = 0.3$, $p = 0.88$), or for treatment group ($F(1, 130) = 0.8$, $p = 0.37$), or for time by group interaction ($F(3, 390) = 0.4$, $p = 0.73$). A further analysis compared participants across the outcome categories defined above; that is "Stable", "Targeted" and "Relapse". The purpose of this analysis was to check for changes in antipsychotic dosage associated with the targeted treatment which may otherwise explain the differences in relapse and rehospitalisation rates observed during the 12-months.

Table 5.5 Chlorpromazine dosage at entry, 12, 26 and 52 weeks by Treatment Group and by Outcome Category

	Chlorpromazine Equivalent daily dosage in mg (sd)			
Group	**Entry**	**12-weeks**	**26-weeks**	**52-weeks**
Treatment Group				
CBT + TAU	404	397	399	395
(n = 66)	(251.1)	(229.1)	(230.9)	(232.2)
TAU alone	362	356	365	379
(n = 67)	(226.1)	(200.8)	(231.1)	(246.6)
Outcome category				
Stable	356	351	337	346
(n = 76)	(222)	(222)	(202)	(215)
Targeted	364	380	398	376
(n = 23)	(234)	(235)	(237)	(226)
Relapsers	455	429	469	485
(n = 34)	(269)	(179)	(265)	(274)

Table 5.5 shows that there were no significant main effects for time ($F(3, 390) = 0.5$, $p = 0.659$). Significant group effects were observed ($F(2, 130) = 3.4$, $p = 0.037$). There was no significant time by group interaction ($F(6, 390) = 1.1$, $p = 0.334$). Post hoc Sheffe tests revealed that relapsers were receiving significantly higher chlorpromazine equivalent daily dosages in comparison to participants categorised as stable (Mean difference = 112 m.g. daily, $p = 0.037$, 95% CI: 5 to 218 m.g.)

5.3.5 What were the predictors of relapse and duration to relapse?

The overall model for all predictors was significant (Wald $\chi^2(24) = 60.8$, $p < 0.001$) and manifested a high degree of overall accuracy (90.6%) and in the accuracy of predicting not relapsing (95.6%), and relapsing (73.1%). As shown in Table 5.6 below, the only variables that were found to significantly predict relapse were allocation to the TAU treatment group (Wald $\chi^2(1) = 8.4$, $p = 0.004$, Exp $\beta = 2.544$), receipt of typical medication (Wald $\chi^2(1) = 4.8$, $p = 0.028$, Exp $\beta = 1.731$), receipt of atypical medication (Wald $\chi^2(1) = 4.1$, $p = 0.044$, Exp $\beta = 1.128$), increased chlorpromazine equivalent medication dosage (Wald $\chi^2(1) = 7.9$, $p = 0.005$, Exp $\beta = 1.002$), increased baseline positive symptoms (Wald $\chi^2(1) = 4.2$, $p = 0.041$, Exp $\beta = 1.016$), and lower self-esteem (Wald $\chi^2(1) = 5.2$, $p = 0.023$, Exp $\beta = 1.032$). In addition, lower global psychopathology (Wald $\chi^2(1) = 5.7$, $p = 0.017$, Exp $\beta = 0.644$) and reduced perceptions of entrapment in illness (Wald $\chi^2(1) = 4.6$, $p = 0.033$, Exp $\beta = 0.349$) were associated with a reduced risk of having a relapse.

Table 5.6 Predictors of relapse (Logistic Regression Analysis)

Variable	B	S.E.	Wald χ^2	Wald df	Wald P=	Exp (β)
Treatment Condition	2.903	1.005	8.4	1	.004**	2.544
Typical Medication	5.168	2.357	4.8	1	.028*	1.731
Atypical Medication	4.436	2.202	4.1	1	.044*	1.128
Chlorpromazine dosage	0.005	0.002	7.9	1	.005**	1.002
Positive Symptoms (PANSS)	0.383	0.187	4.2	1	.041*	1.016
Global Psychopathology (PANSS)	-0.242	0.101	5.7	1	.017*	0.644
Entrapment (PBIQ)	-0.548	0.257	4.6	1	.033*	0.349
Rosenberg Self Esteem Scale	0.230	0.101	5.2	1	.023*	1.032

	χ^2	df	p=
Model	60.8	24	.000***

*p < 0.05, **p < 0.01, ***p < 0.001

Using the Cox's Proportional Hazards Regression analysis, seven variables were entered as covariates; treatment condition, type of medication, daily Chlorpromazine equivalent dosage, positive symptoms, Global Psychopathology, Entrapment and the Rosenberg Self Esteem Scale. The overall model was significant (χ^2 (8) = 21.8, p = 0.005). Table 5.7 shows that allocation to treatment condition (Wald χ^2 (1) = 10.8, p = 0.001, Exp β = 4.283), daily chlorpromazine equivalent dosage (Wald χ^2 (1) = 8.3, p = 0.004,

Exp β = 1.002), and Rosenberg Self Esteem Scale (Wald χ^2 (1) = 6.2, p = 0.013, Exp β = 1.103) were significant predictors of duration to relapse.

Table 5.7 Duration to relapse (Cox Proportional Hazards Regression Analysis)

Variable	B	S.E.	Wald χ^2	Wald df	Wald P =	Exp (β)
Treatment Condition	1.455	0.443	10.8	1	.001**	4.283
Daily Chlorpromazine equivalent	0.002	0.001	8.3	1	.004**	1.002
Rosenberg Self Esteem Scale	0.098	0.039	6.2	1	.013*	1.103

	χ^2	df	p =
Model	21.756	8	.000***

*p < 0.05, **p < 0.01, ***p < 0.001

5.4 Discussion

5.4.1 Relapse Outcome

The present study compared two treatment groups for prevention of relapse in schizophrenia, usual treatment (TAU alone) versus CBT plus treatment as usual (CBT + TAU). The study found that over a period of 12-months CBT + TAU was associated with a significant reductions in relapse rate, admission rate, and duration of relapse itself in comparison with TAU alone. There were no significant differences between CBT + TAU and TAU alone on time to relapse or the proportion of participants experiencing a mild, moderate, severe or extreme relapse.

The CBT itself also appeared to show a reasonable rate of accuracy in targeting those who relapsed or were assessed at being at risk of relapse ("Targeting"). Only 5 relapses, that is 15% of the total relapses or potential relapses (n = 33) were missed. In addition, the reduction in relapse rate that was observed during the study period was not associated with reduced rates of "stable" outcomes in comparison with TAU alone. Reduced rates of stable outcomes in the CBT + TAU group would potentially reflect increased rates of false positive interventions for relapse. This is an important consideration because increased rates of false positive interventions would result in unnecessary treatment provision. Unnecessary treatment could inadvertently sensitise individuals to interpreting potentially benign symptoms as evidence early signs of relapse.

Additional strengths in the design of the present study included systematic screening of patient populations, randomised allocation to groups, use of treatment protocol for the CBT group, and monitoring of medication psychiatric care contacts, and an explicit definition of relapse itself. The definition of relapse emphasised the sustained return of positive psychotic symptoms of over a one-week period. In addition, the definition of relapse enabled a rating of relapse severity. In this way, this study was able to overcome some of the limitations of other studies of CBT for schizophrenia, which have emphasised hospital admission as the criterion for relapse.

5.4.2 Limitations

When considering the findings of the present study a number of limitations should be borne in mind. First, whilst assessors were blind at initial assessment prior to randomisation, following randomisation assessors were not blind to treatment received. The follow-up and the prospective identification of relapses amongst 133 participants over 12-months required close liaison with each participant's treatment team. Across the two centres a total of 8 community mental health teams were involved in the study. At the outset of the study, it was decided that blind assessment was not a realistic possibility given the amount of liaison required by assessors. Therefore the results of this trial should therefore be regarded, as preliminary and appropriate caution is required in generalising these findings. Notwithstanding this methodological limitation, Shapiro (1996) has commented that blind evaluation is virtually impossible with psychological treatment trials, particularly those who compare an experimental psychological treatment with a non-psychological treatment condition (Kuipers et al., 1998). Indeed, Shapiro (1996) comments that "personnel employed to interview patients to assess their progress are seldom able to avoid exposure to information (especially within patients' accounts of their experiences) that gives away the nature of the treatment they have undergone" (p. 204).

Second, therapist time was not controlled for in the TAU alone group. No other study has examined either the feasibility or effectiveness of targeting CBT on the appearance of early signs of relapse. Therefore, in planning the study a pragmatic view was taken, that in the absence of any evidence

differences between the treatment groups in terms of the number of psychiatric contacts during the study period, which, if had occurred, would indicate increased monitoring or change in treatment delivery.

Fourth, a single therapist carried out the CBT treatments and outcome results may reflect factors associated with the presentation of the treatments by this therapist rather than factors associated with the treatment itself. One possible advantage of using a single therapist in a treatment trial is that it avoids potentially introducing additional sources of variance into a study via variation in the quality of treatment provided by different therapists. For example, the Sensky et al., (2000) study of CBT for drug resistant psychosis, which employed two therapists, one at each of the treatment centres found that there was an overall significant difference between the two therapists on the Cognitive Therapy Rating Scale. However, in this preliminary study, the therapist did attempt to adhere to the treatment protocol although formal assessments of treatment quality and fidelity were not undertaken. Such issues should be rectified in future studies.

Finally, it is possible that providers of treatment as usual adopted elements of the experimental treatment without the investigator's knowledge. Such problems are common to randomised controlled trials and are often referred to "contamination" or "leakage". However in a review of the dissemination of psychological treatments for schizophrenia, Tarrier et al., (1998) conclude that there is little evidence that these treatments are routinely available to individuals or their families. Indeed this finding is supported by a recent

Scottish review of standards of treatment for schizophrenia (Clinical Standards Board for Scotland, 2002).

5.4.3 Predictors of Outcome

The study employed a cognitive behavioural treatment, which specifically targeted the negative beliefs and attributions thought to be associated with the initiation and acceleration of relapse (Birchwood, 1995; Gumley et al., 1999). Two regression analyses were employed, the first examined predictors of relapse itself, and the second examined predictors of duration to relapse. A number of predictors of relapse were identified; allocation to the TAU treatment group, receipt of typical medication, receipt of atypical medication, increased chlorpromazine equivalent medication dosage, increased baseline positive symptoms, and lower self-esteem. In addition, lower global psychopathology and reduced perceptions of entrapment in illness were associated with a reduced risk of having a relapse. Predictors of duration to relapse were; allocation to treatment condition, daily chlorpromazine equivalent dosage and Rosenberg Self Esteem Scale.

The findings that higher daily chlorpromazine dosage and receipt of typical and atypical antipsychotic medication were associated with increased risk of relapse were unexpected findings. It may be that these findings reflect pre-existing differences in the severity of illness. The findings that increased positive symptoms and global psychopathology are also associated with relapse may be consistent with this interpretation. More contentiously, however, higher chlorpromazine dosage and receipt of typical medication may

also impair learning and implementation of coping strategies. In this study relapsers had a chlorpromazine daily dosage of 445 to 485-mg during the 12-months. In a meta-analysis of randomised controlled trials, Bollini et al. (1994) found that a chlorpromazine equivalent daily dosage of more than 375-mg gave no therapeutic advantage.

Consistent with the proposals of the model of treatment, negative appraisals of self was associated with increased vulnerability to relapse and duration to relapse. Reduced appraisals of entrapment in illness were predictive of not having a relapse and therefore may represent a protective factor against having a relapse. Negative appraisals of self and illness have also been found to be associated with the development of Post Psychotic Depression (PDD; Iqbal et al., 2000). Iqbal et al., (2000) proposed that certain life situations are likely to be depressogenic, particularly if they encapsulate feelings of loss, humiliation and entrapment. In line with their proposal, psychosis is seen as a life event whose appraisal may involve these elements. Participants who developed PPD were more likely than their non-PPD counterparts to attribute the cause of psychosis to themselves, perceive greater loss of autonomy and valued role, and perceive themselves to be entrapped and humiliated by their illness. In a similar manner, for those with heightened negative appraisals of themselves, who perceive their illness experience as entrapping and uncontrollable, may respond to early signs of relapse with feelings of fear and helplessness, which in turn accelerate the process of relapse. Thus individuals' beliefs and attributions for their illness experience may play a pivotal role in the development of relapse. Further evidence concerning the role of attributions in

the development of relapse has been described by Barrowclough et al., (1994) who found that relatives' attributions for their family members' behaviour were predictive of relapse. Relatives with high expressed emotion (EE) invoked causal attributions attributing responsibility to the patient for outcome. Relatives high on emotional overinvolvement (EOI), made more attributions of causality to external and uncontrollable causes, and indeed made most attributions to illness. Controllability and internality were significantly contributed to relapse prediction, even after controlling for EE status and intervention.

5.4.4 Clinical implications

The study found that providing CBT specifically tailored to targeting the early stages of relapse was associated with reduced relapse, duration of relapse and admission rate over 12-months. Further studies of CBT for relapse, which address the methodological weaknesses of this study need to be undertaken. Furthermore consistent with the proposals of the treatment negative appraisals of self was predictive of relapse and duration to relapse, and increased appraisal of control over illness was associated with reduced relapse risk. These findings are suggestive that heightened negative self-appraisal and increased sense of entrapment in illness may represent cognitive vulnerabilities to relapse in schizophrenia. The clinical significance of preventing relapse in terms of impact of CBT on remission rates and social functioning have not been described, and these will now be considered in Chapter 6.

Chapter 6

A non-blind randomised-controlled trial of targeting cognitive behavioural therapy on relapse in schizophrenia: II. Remission and social functioning at 12-months

6.1 Introduction

Cognitive Behavioural Therapy (CBT) in conjunction with antipsychotic medication for schizophrenia has been shown to be effective in the reduction of chronic positive psychotic symptoms at the end of treatment (Tarrier et al., 1993; Kuipers et al., 1997; Tarrier et al., 1998; Sensky et al., 2000). When delivered during the acute phase of illness, there is evidence that CBT is associated with improved rates of remission from positive psychotic symptoms (Drury et al., 1996). These treatment effects appear to maintained at six-months (Tarrier et al., 1993), nine-months (Kuipers et al., 1998; Sensky et al., 2000), twelve-months (Tarrier et al., 1999) and at twenty-four month follow-up (Tarrier et al., 2000).

Traditionally randomised controlled trials make comparisons between pre- and post treatment data to evaluate the impact of a treatment relative to a control or comparison group. Changes that are associated with an intervention, which are statistically significant provide evidence attesting to the reliability of change or group differences. However statistically significant changes associated with an intervention, may or may not be clinically significant. This distinction between statistical significance and clinical significance of improvement in the evaluation of psychotherapies has been increasingly emphasised by a number of investigators (e.g. Jacobson et al., 1984; Kazdin, 1999), including those evaluating CBT for schizophrenia (Tarrier et al., 1993; Kuipers et al., 1997; Tarrier et al., 1998; Sensky et al., 2000). Clinically significant change can be defined as whether the magnitude of changes is large enough to be considered meaningful (e.g. Jacobson & Truax, 1991; Jacobson et al., 1999), or whether

treated individuals are distinguishable from normal individuals with respect to their principal complaints following treatment (e.g. Kendall & Grove, 1988; Kendall et al., 1999). In the latter approach, known as normative comparisons, clinical significance is defined as end-state functioning that falls within the normative range on important measures (Kendall et al., 1999). This latter definition of clinical significance may be too stringent, particularly for disorders, which are associated with a chronic course, or, as in CBT for schizophrenia, where the intervention has been delivered during the chronic phase of illness. Clinical significance however remains an important criterion for evaluating outcome. Jacobson and colleagues have proposed three methods for the assessment of clinically significant change, which emphasise the magnitude of change as a measure of clinical significance. The three proposed methods for clinically significant change are (a) if the level of functioning falls outside the range of the dysfunctional population, where the range is defined as 2 *SDs* above the mean for that population; (b) if the level of functioning falls within the range of the normal population, where the range is defined as beginning 2 *SDs* below the normal population mean; or (c) when the individual's level of functioning is statistically more likely to be in the functional rather than the dysfunctional population. Therefore, if an individual reliably improves with a treatment, but at the end of intervention remains somewhat dysfunctional compared to normative data then they are considered "improved but not recovered". On the other hand, if an individual reliably improves with treatment, and is within normal limits on the variable of interest, then they are considered "recovered".

Foster & Mash (1999) describe a further approach to the definition of clinical significance: social validity. Social validity refers to the social importance and acceptability of treatment goals, procedures and outcomes. In particular, the distinction is made between instrumental and ultimate goals. Ultimate goals are problems that lead an individual to seek help. Instrumental goals in contrast can be defined as desired outcomes that can lead to ultimate goals. In this case instrumental goals are defined by their causal and predictive relationship to ultimate goals. For example, a CBT therapist might propose that modifying negative beliefs about oneself and others (instrumental goals) will result in improved relationships with others (individual's ultimate goal). The measurement of the social validity of treatment goals can be made through the evaluation of normative comparisons as described by Kendall & Grove, (1988) and Kendall et al., (1999), subjective evaluation (Foster & Mash, 1999) or changes in functional impairment and adaptation (Hawkins, 1991). Hawkins suggested that the importance of treatment goals could be examined in relation to their contribution to improvements in social functioning or indeed the reduced burden of care for family members. Gladis et al., (1999) point out that many disorders can be viewed as "lifetime" or chronic illnesses that have long-term effects despite periods of remission. Schizophrenia is an example of such a long-term disorder that has effects above and beyond the acute or persisting symptoms of psychosis. Strauss and Carpenter (1977), for example, have shown that clinical recovery from schizophrenia does not necessarily imply social recovery. Therefore, whilst it is important to know whether a clinically significant reduction in symptoms

has occurred, it is also of central clinical significance to determine if the individual's quality of life has also improved (e.g. Kazdin & Wilson, 1978).

Randomised controlled trials of CBT for schizophrenia have sought to examine the clinical significance of reductions in persisting positive psychotic symptoms (Tarrier et al., 1993; Kuipers et al., 1997; Tarrier et al., 1998; Sensky et al., 2000). Tarrier et al., (1993) used a reduction of 50% of total symptom severity score accompanied by a 1 *SD* improvement in social functioning as a definition of clinically significant change. No participants achieved this criterion. When the requirement for a 1 *SD* improvement in social functioning was removed, 60% (9/15) of those receiving Coping Skills Enhancement (CSE) had a decrease in symptoms of 50% or greater compered to 25% (3/12) of the Problem Solving (PS) group ($p = 0.065$). Tarrier et al., (1998) used this definition to examine "Clinically Important Improvement". CBT was associated with significantly increased rates of clinically important improvement compared to supportive counselling and routine care. Using logistical regression analysis clinically important improvement was predicted by allocation to CBT, shorter duration of illness, and less severe symptoms at entry. Sensky et al., (2000) adopted the same criterion of clinically significant change to measures of positive symptoms, negative symptoms and depression. Using this criterion CBT was associated with a significant advantage over controls in the clinically significant reduction of positive symptoms. Kuipers et al., (1997) defined reliable clinical change on the basis of the average variability in the scores of their main outcome measure (the root mean sum of the squared standard deviation of individual scores for each case in the control

group). This equated to a 5-point change or 20% improvement. Clinically significant improvement was taken as a 10-point change or more. Clinically significant improvement was achieved in 21% (6/28) of individuals receiving CBT versus 3% (1/32) of the routine care group. In terms of their criterion for reliable clinical improvement (5-points or more) 29% (8/28) of the CBT group and 28% (9/32) of the routine care group achieved this criterion. At nine-month follow-up after treatment, the CBT group had continued to improve with 65% (15/23) demonstrating a reliable clinical improvement, versus 17% (4/24) of the standard treatment group. Drury et al., (1996) examined the effectiveness of CBT delivered during the acute phase of psychosis. The clinical significance of outcomes was defined by a 'clinical recovery' criterion. Clinical recovery was deemed to have taken place when (a) participants had recovered from their positive symptoms, (b) insight had returned, and (c) non-specific symptoms such as dysphoria and low level psychotic thinking had resolved. According to this criterion 50% of those treated with CBT achieved clinical recovery by 100 days versus 15% of controls. Two trials of CBT for schizophrenia have examined the impact of treatment on social functioning (Tarrier et al., 1993; Kuipers et al., 1997). Tarrier et al., (1993) found that only 2 participants from the two treatments (CSE and PS) achieved any change of magnitude in their level of social functioning. Kuipers et al., (1997) did not find any effect for CBT relative to standard treatment in terms of changes in social functioning.

The present study is a randomised-controlled trial of CBT targeted on the prevention of relapse in schizophrenia. As described in Chapter 5, over 12-

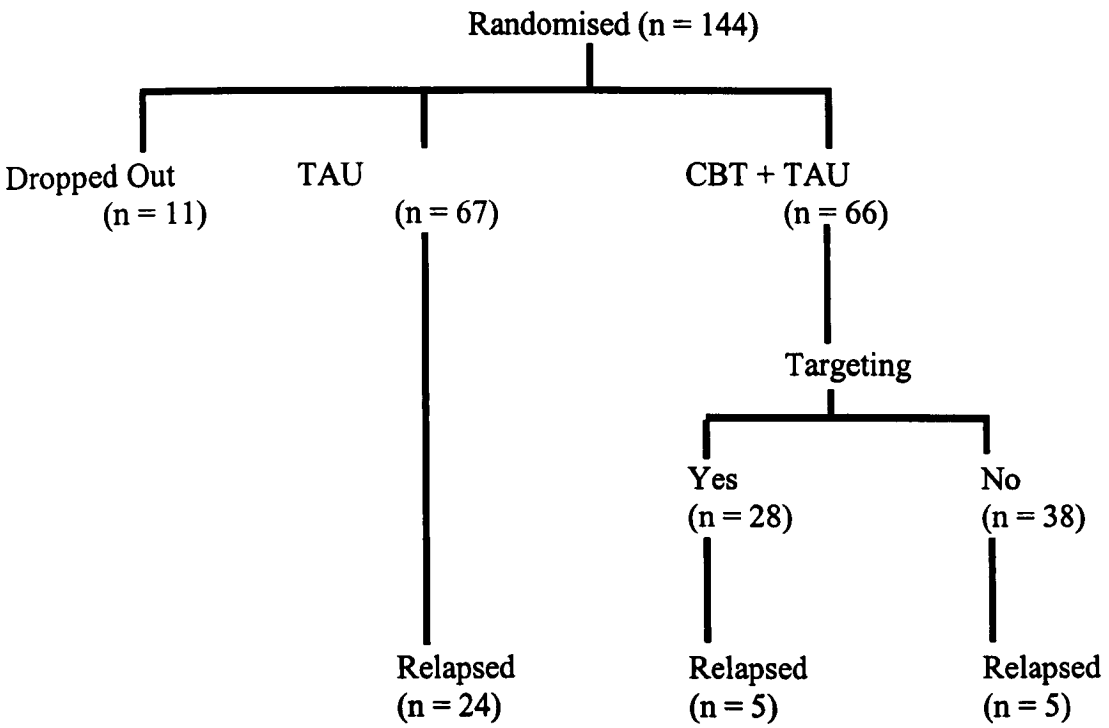
months CBT in combination with treatment as usual (TAU) was associated with a significant reduction in relapse rate (14%, 9/66) compared to TAU alone (36%, 24/67). This observed reduction in relapse rates was statistically significant, but was it clinically significant? Similar to Teasdale et al., (2000) who examined mindfulness based CBT for recurrent major depressive disorder; the principal key outcome of interest was the prevention of a future event (relapse/ recurrence) rather than the resolution of symptoms present at baseline. Teasdale et al., argued that the application of tests of clinical significance, such as those defined by Kendall et al., (1999) were not applicable to outcome trials of this nature. This was because the population of interest was largely remitted or recovered at entry. However, in the case of schizophrenia, even during periods of relative remission individuals continue to report some residual positive psychotic symptoms and continue to experience significant difficulties in their day to day social functioning (e.g. Thara et al., 1994).

It was hypothesised that preventing relapse in schizophrenia would promote (a) recovery from any residual positive psychotic symptoms of schizophrenia, and (b) would enable some recovery of social functioning to occur. Therefore this study aims to evaluate the clinical significance of relapse prevention in schizophrenia in terms of observed remission rates and clinically significant improvements in social functioning at 12-months.

6.2 Method

Methodology, case identification, assessment criteria and definitions of relapse are described in Chapter 5. The treatment procedures are summarised in Figure 6.1 below.

Figure 6.1 Summary of treatment procedures



6.2.1 Assessments

Assessments were carried out at entry, 12-weeks, 26-weeks and 52-weeks using a battery of measures. Positive and negative symptoms were measured using the Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987). Psychological distress was measured using the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983). Negative appraisals of psychosis were assessed using the Personal Beliefs about Illness Questionnaire (PBIQ; Birchwood et al., 1993). The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) was selected as a measure of negative appraisals of self.

6.2.1.1 Remission

The proportion of remitted participants was assessed at entry, and 52 weeks. Remission of positive symptoms was defined as a score of less than 10 (scores of 7, 8, and 9) on the positive scale of the PANSS. Larsen et al., (2000) defined remission as no score higher than 3 on any of the actual PANSS items. This clinical definition according to PANSS criteria is the similar to Larsen et al., (2000). However, in addition this definition also required that the individual had no relapses in the year preceding assessment.

6.2.1.2 Social Functioning

The Social Functioning Scale (SFS; Birchwood et al., 1990; Appendix E) was used to assess social role and behavioural functioning across seven basic areas of community functioning. The scale was first used in studies of family interventions of schizophrenia and was found to be sensitive to changes over time (Barrowclough & Tarrier, 1990). The scale has also been used in two previous studies of CBT for schizophrenia (Tarrier et al., 1993; Kuipers et al., 1997). The scale assesses social functioning in the following areas, social engagement, interpersonal behaviour, prosocial activities, recreation, independence and employment. The scale also differentiates between lack of performance and lack of skills necessary for independent living. The scale has demonstrable reliability and validity for the assessment of social functioning in schizophrenia. For social functioning, a criterion of clinical significance was used to define whether of not a participant achieved clinically significant improvement in their social functioning defined as whether an individual's

outcome response fell outside the range of the population by 2 *SDs* from the pre-treatment mean (Jacobson & Truax, 1991).

6.2.2 Baseline Characteristics

As described in Chapter 5, the CBT + TAU and TAU alone groups did not significantly differ in relation to demographic characteristics, clinical characteristics and history of illness. Furthermore there were no differences between the two groups on rates of remission prior to study entry as defined in Section 6.2.1.1 above. Of the CBT + TAU group 52 (81.2%) were classified as not remitted, compared to 51 (79.7%) in TAU alone group (χ^2 (1) = 0.1, p = 0.824). Table 6.1 shows the CBT + TAU and TAU alone groups did not differ significantly at pre-treatment in relation to social functioning (SFS).

Table 6.1 Baseline Characteristics between treatment groups for Social Functioning Scale (SFS).

Variable	CBT + TAU n = 66	TAU alone n = 67
	Mean (Sd)	**Mean (Sd)**
Social Functioning Scale (SFS)		
Social Engagement	9.2 (2.5)	9.7 (2.4)
Interpersonal Communication	6.5 (1.9)	6.6 (2.0)
Independence Performance	26.0 (6.6)	27.0 (6.2)
Independence Competence	34.9 (3.9)	36.0 (3.3)
Recreation	14.6 (6.0)	13.7 (5.5)
Prosocial	12.6 (8.3)	12.0 (6.3)
Occupational	3.1 (3.0)	2.9 (3.1)

6.2.3 Statistical Analysis

Associations between categorical variables at baseline were assessed by use of χ^2, whereas t–test analysis was used to test associations between continuous variables. Pre-treatment differences were examined using one-way ANOVA. A Repeated measures ANOVA was used to test time, group and interaction effects on the PANSS and Social Functioning Scale. *Post hoc* comparisons were made using *t* tests. The overall sample comprised of 133 participants, although on some of the measures there was a small proportion of missing data. The same methodology was adopted for the examination of predictors of remission and clinically significant improvements in social functioning as described in Chapter 5. To summarise, logistic regression was performed for the study of the predictors of remission and social functioning. Two dichotomous variables, one for remission outcome (remitted versus not remitted) and one for social functioning outcome (clinically significantly improved versus not clinically significantly improved), were created, in order to be used as dependent variables. Five sets of factors were created and entered the logistic regression analysis. The order in which predictors entered analysis both as individual factors and as sets was: treatment factors (treatment group, type of medication, dosage equivalent to chlorpromazine), demographic factors (age, gender), history of illness factors (duration of illness, history of relapse and history of admission at 12 months pre – treatment), clinical factors (PANSS Positive, PANSS Negative, PANSS General Psychopathology, BSI GSI) and psychological factors (RSES, PBIQ Self versus Illness, PBIQ Entrapment, PBIQ Shame, PBIQ Humiliation, PBIQ Loss). Predictor variables were retained in the model only if they showed a

significant Wald test (Wald $_p$ < .05), indicating the significance of this predictor. Any predictor variable that failed to achieve this criterion was discarded from the analysis and a new logistic regression analysis was performed on significant factors only. Such methodology has enabled to reduce the number of factors entering the final model, in order to produce meaningful results. Results are reported for significant predictors only.

6.3 Results

6.3.1 Did CBT increase remission?

Table 6.2 shows that on the Positive and Negative Syndrome Scale (PANSS) there were significant time effects for positive symptoms ($F(3, 387) = 9.7$, $p < 0.001$), negative symptoms ($F(3, 387) = 10.0$, $p < 0.001$), and general psychopathology ($F(3, 387) = 25.3$, $p < 0.001$). There were no significant group effects on positive, negative and general psychopathology scales. There were significant treatment time by group interaction effects for negative symptoms ($F(3, 387) = 3.1$, $p = 0.027$) and general psychopathology ($F(3, 387) = 5.5$, $p = 0.001$). Post hoc univariate analysis showed that CBT + TAU was associated with significantly lower positive symptoms ($t(131) = 2.01$, $p = 0.046$, Mean difference = 1.03: 95% CI, 0.01 to 2.04) and lower negative symptoms ($t(131) = 2.03$, $p = 0.044$, Mean difference = 1.68: 95% CI, 0.04 to 3.31). This means that a linear change over time in positive and negative symptoms for the two groups showed a significant advantage for CBT + TAU at 52 weeks.

There were no significant differences in the proportion of participants who were remitted at entry (CBT + TAU = 18.8%, TAU = 20.3%, χ^2 (1) = 0.1, p = .824). At 52-weeks the proportion of those receiving CBT + TAU who were remitted was 62.1% (41 / 66) compared to 38.8% (26 / 67) for TAU alone (χ^2 (1) = 7.2, p = .007, Odds Ratio = 2.58: 95% CI, 1.28 to 5.20). The intent to treat analysis, which includes those who did not complete the study categorised as not remitted (CBT + TAU = 6, TAU alone = 5), continued to reveal that the advantage for CBT + TAU (n = 41, 56.9%) over TAU alone (n = 26, 36.1%), (χ^2 (1) = 6.3, p = 0.01, Odds ratio = 2.34: 95% CI, 1.20 to 4.57). According to the intention to treat analysis, the Number Needed to Treat (NNT) to achieve one remission in CBT + TAU is 7 participants.

6.3.2 Did CBT improve social functioning?

As described in Table 6.2, there were significant time effects for social engagement (F (3, 127) = 4.6, p = 0.003), interpersonal communication (F (3, 127) = 6.2, p < 0.001), performance of independent activities (F (3, 127) = 12.6, df = 3, p < 0.001), competence in independent activities (F (3, 127) = 5.3, p = 0.001), prosocial activities (F (3, 127) = 10.9, p < 0.001), and occupational functioning (F (3, 127) = 8.3, p < 0.001). There were significant group effects for Prosocial Activities (F (1, 127) = 5.4, p = 0.022). There were significant time by treatment group interaction effects for performance of independent activities (F (3, 381) = 3.5, p = .016) and prosocial activities (F (3, 381) = 6.6, p < .001). Post hoc univariate comparisons revealed that CBT + TAU was associated with significant improvements in Prosocial Activities

in comparison to TAU alone (t (129) = -3.37, p = 0.001, Mean difference = -4.99: 95% CI, -7.91 to –2.07).

Table 6.2 Analysis of variance of time (pre – treatment, 12 – weeks, 26 – weeks, 52– weeks) x group (CBT + TAU, TAU alone) for PANSS, and SFS.

Variable	Time (df = 3, 387)		Time x Group (df = 3, 387)		Group (df = 1,129)		Post Hoc Analysis
	F	P =	F	P =	F	P =	52 weeks
Positive and Negative Syndrome Scale (PANSS)							
Positive	9.7	.000***	2.0	.119	2.6	.111	1 > 2*
Negative	10.0	.000***	3.1	.027*	1.7	.187	1 > 2*
General	25.3	.000***	5.5	.001***	0.1	.748	n.s.
	Time (Df = 3, 127)		**Time x Group (Df = 3, 381)**		**Group (Df = 1,127)**		**Post Hoc Analysis**
Social Functioning Scale (SFS)							
Social Engagement	4.6	.003**	1.5	.212	0.2	.631	n.s.
Interpersonal Communication	6.2	.000***	1.4	.252	0.6	.448	n.s.
Independence Performance	12.6	.000***	3.5	.016*	0.5	.464	n.s.
Independence Competence	5.3	.001***	1.3	.263	1.2	.266	n.s.
Recreation	0.9	.431	2.2	.083	3.2	.075	n.s.
Prosocial	10.9	.000***	6.6	.000***	5.4	.022*	1 > 2***
Occupational	8.3	.000***	0.4	.730	0.7	.410	n.s.

*p < 0.05, **p < 0.01, ***p < 0.001, 1 = CBT + TAU, 2 = TAU alone

The clinical significance of changes in Prosocial Activities was examined according to the methodology developed by Jacobson and colleagues (1984). Clinically significant change is defined as a magnitude of change of 2 *SDs* towards functionality according to the population's distribution of scores at entry. The results of this analysis are illustrated in Table 6.3 below. The two treatment groups were found to differ only in Prosocial Sub-scale. At 12 months, the proportion (n = 39, 59.1%) of participants in CBT + TAU who had achieved clinically significant improvements in Prosocial Activities was significantly greater than those in TAU (n = 25, 38.5%) (χ^2 (1) = 5.6, p = 0.023, Odds Ratio = 2.31: 95% CI, 1.15 to 4.66).

Table 6.3 Number and percentage of participants achieving clinically significant change in Prosocial activities.

Variable	CBT (n = 66) (%)		TAU (n =67) (%)		χ^2 df = 1	p =
Social Functioning Scale (SFS)	*Yes*	*No*	*Yes*	*No*		
Prosocial	39 (59.1)	27 (40.9)	25 (38.5)	40 (61.5)	5.6	.023*

*p < 0.05

The intent to treat analysis, which includes those who did not complete the study categorised as not having achieved clinically significant changes in Prosocial Activities (CBT + TAU = 6, TAU alone = 5), continued to reveal that the advantage for CBT + TAU (n = 39, 54.2%) over TAU alone (n = 25,

34.7%), (χ^2 (1) = 5.5, p = 0.02, Odds ratio = 2.22: 95% CI, 1.13 to 4.35). According to the intention to treat analysis, the Number Needed to Treat (NNT) to achieve clinically significant change in one participant in CBT + TAU is 7 participants.

6.3.3 What were the predictors of remission?

The overall model for all predictors was significant (Wald χ^2 (24) = 59.0, p < 0.001) and manifested a high degree of overall accuracy (80.3%) and in the accuracy of predicting not being remitted (76.4%), and being remitted (83.9%). As shown in Table 6.4 below, the only variables that were found to significantly predict remission were allocation to the CBT + TAU treatment group (Wald χ^2 (1) = 7.4, p = 0.006, Exp β = 0.188), reduced baseline positive symptoms (Wald χ^2 (1) = 13.5, p < 0.001, Exp β = 0.588), reduced daily chlorpromazine equivalent medication (Wald χ^2 (1) = 8.9, p = 0.003, Exp β = 0.996).

Table 6.4 Predicting remission outcome

Variable	B	S.E.	Wald χ^2	Wald df	Wald p =	Exp (β)
Treatment Group	-1.673	.613	7.4	1	0.006**	0.188
Clorpomazine dosage	-.004	.001	8.9	1	0.003**	0.996
PANSS Positive	-.531	.145	13.5	1	.000***	0.588
			χ^2	df	p =	
Model			59.0	24	.000***	

*p < 0.05, **p < 0.01, ***p < 0.001

6.3.4 What were the predictors of clinically significant improvements in social functioning?

The overall model for all predictors was significant (Wald χ^2 (24) = 63.4, p < 0.001) and manifested a high degree of overall accuracy (81.2%) and in the accuracy of predicting not being improved (80.3%), and being improved (82.1%). As shown in Table 6.5 below, the only variables that were found to significantly predict remission were allocation to the CBT + TAU treatment group (Wald χ^2 (1) = 8.1, p = 0.004, Exp β = 0.167), lower baseline negative symptoms (Wald χ^2 (1) = 16.0, p < 0.001, Exp β = 0.706), lower appraisals of humiliation associated with having psychosis (Wald χ^2 (1) = 6.7, p = 0.010, Exp β = 0.403).

Table 6.5 Predicting prosocial outcome

Variable	B	S.E.	Wald χ^2	Wald df	Wald P =	Exp (β)
Treatment Group	-1.791	.627	8.2	1	0.004**	0.167
PANSS Negative	-.348	.087	16.0	1	0.000***	0.706
PBIQ Humiliation	-.909	.351	6.7	1	.010*	0.403
			χ^2	df	p =	
Model			63.4	24	.000***	

*p < 0.05, **p < 0.01, ***p < 0.001

6.4 Discussion

6.4.1 Clinical Significance and CBT for Schizophrenia

Randomised controlled trials of CBT for schizophrenia have sought to examine the clinical significance of reductions in persisting positive psychotic symptoms (Tarrier et al., 1993; Kuipers et al., 1997; Tarrier et al., 1998; Sensky et al., 2000). Tarrier et al., (1993) used a reduction of 50% of total symptom severity score accompanied by a 1 *SD* improvement in social functioning as a definition of clinically significant change. However in their study, no participants achieved this criterion. Consequently Tarrier et al., removed the requirement for a 1 *SD* improvement in social functioning and found that 60% (9/15) of those receiving Coping Skills Enhancement (CSE) had a decrease in symptoms of 50% or greater compered to 25% (3/12) of the Problem Solving (PS) group (p = 0.065). Tarrier et al., (1998) used this

definition to examine "Clinically Important Improvement". CBT was associated with significantly increased rates of clinically important improvement compared to supportive counselling and routine care. Sensky et al., (2000) adopted the same criterion of clinically significant change to measures of positive symptoms, negative symptoms and depression. Sensky et al., found that using this criterion CBT was associated with a significant advantage over controls in the clinically significant reduction of positive symptoms. Kuipers et al., (1997) defined reliable clinical change on the basis of the average variability in the scores of their main outcome measure (the root mean sum of the squared standard deviation of individual scores for each case in the control group). This equated to a 5-point change or 20% improvement. Clinically significant improvement was taken as a 10-point change or more. Kuipers et al., found that clinically significant improvement was achieved in 21% (6/28) of individuals receiving CBT versus 3% (1/32) of the routine care group. In terms of their criterion for reliable clinical improvement (5-points or more) 29% (8/28) of the CBT group and 28% (9/32) of the routine care group achieved this criterion. At nine-month follow-up after treatment, the CBT group had continued to improve with 65% (15/23) demonstrating a reliable clinical improvement, versus 17% (4/24) of the standard treatment group. Drury et al., (1996) examined the effectiveness of CBT delivered during the acute phase of psychosis. The clinical significance of outcomes was defined by a 'clinical recovery' criterion. Clinical recovery was deemed to have taken place when (a) participants had recovered from their positive symptoms, (b) insight had returned, and (c) non-specific symptoms such as dysphoria and low level psychotic thinking had resolved. Drury et al., found that according to

attesting to the effectiveness of targeting CBT, a control for therapist time was not regarded as essential. Participants receiving the targeted CBT had a mean of about 7 hours of treatment. This compares well to other studies of CBT, which have included 19 to 24-hours of therapy (Kuipers et al., 1997; Sensky et al., 2000). In addition, the results described in the present study were achieved in the context of a treatment as usual, which had a high level of routine follow-up from nursing and psychiatry. Participants were seen, on average, fortnightly by their Community Psychiatric Nurse, and bi-monthly by their psychiatrist.

Third, the responsibility for prescribing antipsychotic medication remained with the participants' Responsible Medical Officer, and therefore it was not possible to control for concurrent antipsychotic medication prescribing. To compensate for this antipsychotic medication was monitored throughout the study, and no significant differences were found between the treatment groups (CBT + TAU versus TAU alone). However, those who relapsed during the study had significantly higher daily chlorpromazine equivalent dosages in comparison to those participants who remained stable during the trial.

Furthermore, as there were no controls on medication and because assessors were not blind, communications to participants prescribing psychiatrists and treatment teams could well have sensitised staff to provide closer monitoring and better treatment for the CBT + TAU group. However, there was little evidence of any substantial increases in antipsychotic medication amongst participants who received Targeted CBT. In addition, there were no significant

this criterion 50% of those treated with CBT achieved clinical recovery by 100 days versus 15% of controls. Two trials of CBT for schizophrenia have examined the impact of treatment on social functioning (Tarrier et al., 1993; Kuipers et al., 1997). Tarrier et al., (1993) found that only 2 participants from the two treatments (CSE and PS) achieved any change of magnitude in their level of social functioning. Kuipers et al., (1997) did not find any effect for CBT relative to standard treatment in terms of changes in social functioning.

6.4.2 Remission

The present study found that CBT + TAU was associated with a significant advantage over TAU alone in the reduction of positive and negative symptoms over 12-months. In terms of the clinical significance of the reduction in positive symptoms, a criterion of remitted status was defined according to the absence of positive symptoms at 12-months, amongst those who did not relapse during the course of the study. CBT + TAU was associated with a significant advantage over TAU alone in the achievement of remitted status. These findings are similar to those of Drury et al., (1996b) who found that the delivery of CBT during the acute phase of psychosis was associated with increased rates of remission (55% versus 25%) at 100 days following entry to the study. Similar to the present study, Drury et al., defined remission as the full resolution of positive symptoms. However, unlike Drury et al's., study, the present trial examined CBT delivered in a group of stabilised outpatients without severe drug refractory positive psychotic symptoms.

Predictors of remitted status at 12-months were also analysed. Remission was associated with allocation to the CBT + TAU group, lower dosages of antipsychotic medication, and lower levels of positive symptoms at entry to the study. The finding that a combination of CBT and lower dosages of antipsychotic medication is an interesting one. Previous research has shown that whilst maintenance antipsychotic medication is associated with reduced relapse, it exerted a cost in terms of reduced social functioning (Johnstone et al., 1990). Low dosage (reviewed by Barbui et al., 1996) and intermittent medication (e.g. Jolley et al., 1989, 1990) strategies are associated with reduced side effects but increased relapse rates at 12-months. However, the inclusion of adjunctive psychological interventions appear to offset the increased relapse risk associated with low dosage treatment (e.g. Goldstein et al, 1978) and intermittent treatment (e.g. Carpenter et al., 1987; Herz et al., 1991). This finding that the combination of CBT and lower dosages of antipsychotic medication predicted remitted status is in line with these results. In terms of studies of CBT for schizophrenia, this is the first study to report such a finding that CBT augments a lower dosage strategy. Clearly such a finding may be a feature of the group of participants included in this study. They were different to those included in other studies of CBT as they were not experiencing severe drug resistant symptoms of psychosis (Tarrier et al., 1993, Kuipers et al., 1997; Tarrier et al., 1998; Sensky et al., 2000) and were not experiencing an acute psychotic episode (Drury et al., 1996a,b).

6.4.3 Social Functioning

Receipt of CBT + TAU was associated with statistically significant improvements at 12-months on all domains of social functioning measured

except recreation. This study also found that CBT + TAU was associated with an advantage over TAU alone for improvement in engagement in prosocial activities. The study examined the clinical significance of improvements in this domain of social functioning across the two treatment groups. The criteria used to define clinically significant change in social functioning was informed by wider developments in the evaluation of psychotherapies (e.g. Jacobson et al., 1984; Kazdin, 1999). The present study found that CBT + TAU was associated with a significant advantage over TAU for clinically significant improvements in engagement in prosocial activities. This is the first study of CBT to report significant improvements in social functioning compared to controls. There are three possible explanations for this finding. First, this finding may reflect the impact of CBT on a group of stabilised individuals with schizophrenia without severe drug resistant positive symptoms. Repeated measures analysis of variance showed that both treatment groups made improvements in their social functioning across the following domains: social engagement, interpersonal communication, independence performance and independence communication. It is an encouraging finding that many individuals who were stabilised at entry continued to make statistically significant improvements in their social functioning. Second, the improvements in social functioning observed in the CBT group might also reflect an outcome of treatments, which target relapse risk. A number of family intervention studies have shown improvements in social functioning (Cranach, 1981; Falloon, et al., 1987; Spiegel & Wissler, 1987; Barrowclough & Tarrier, 1990; Hogarty et al., 1991; Vaughn et al., 1992; Xiang et al., 1994). Third, allocation to treatment group, and lower negative appraisals of illness as

humiliating were also predictive of improved engagement in prosocial activities. Iqbal et al., (2000) have already reported that negative appraisals of illness were predictive of the development of post psychotic depression. The treatment delivered in this study explicitly targeted negative appraisals of illness. The finding that treatment group was predictive of improved social functioning provides some evidence that CBT targeted on the negative appraisals of illness associated with relapse risk can lead to meaningful improvements in social functioning.

6.4.4 Clinical Implications

The study aimed to examine the clinical significance of preventing relapse using targeted CBT. The main findings were that CBT + TAU was associated with increased rates of remission and clinically significant changes in engagement in prosocial activities. Two logistic regression analyses were performed to examine predictors of outcome across these domains. Predictors of remission were allocation to CBT, lower antipsychotic medication, and lower positive symptoms. Predictors of improved engagement in prosocial activities were allocation to CBT, lower negative symptoms and lower perceived humiliation. Furthermore, the finding on the relationship between perceived humiliation and social functioning is a potentially important observation and indicates that cognitive factors may be intimately related to the deficits in social functioning observed in schizophrenia. Such a finding requires further investigation and opens up the possibility that cognitive treatments which target the perception of stigma and humiliation may result in improved social functioning for individuals with schizophrenia.

Chapter 7

A non-blind randomised-controlled trial of targeting cognitive behavioural therapy on relapse in schizophrenia: III. Psychological distress at 12-months

7.1 Introduction

Despite the advances in pharmacological management of schizophrenia, relapse still remains a major factor in the development of illness chronicity. For example, the experience of relapse is critical to the development of secondary depression. Birchwood et al., (1993) found that perception of control over illness was the most powerful predictor of depression in schizophrenia. Recognition of the social, emotional and psychological costs of relapse has lead investigators (e.g. Birchwood, 1995) to attempt to conceptualise psychological approaches to the detection and prevention of relapse. In addition, evidence from recent randomised controlled trials of Cognitive Behavioural Therapy (CBT; Tarrier et al., 1993; Kuipers et al., 1997; Tarrier et al., 1998) for schizophrenia show favourable prospects that the effects of CBT to be maintained at follow-up (e.g. Sensky et al., 2000). However, it is not yet possible to conclude on the basis of current results that CBT is uniquely effective in reducing relapse rate following treatment (e.g. Tarrier et al., 1998).

Treatment manuals adopted by trial investigators (e.g. Kingdon & Turkington, 1994; Fowler et al., 1996) include relapse prevention strategies. These strategies focus on helping individuals recognise and respond to early signs of relapse by seeking help. However, as discussed in Chapter 3, these manuals do not base their relapse prevention strategies on a specialised psychological conceptualisation of relapse itself. In addition, empirically there is a strong link between the experience of relapse and the occurrence of psychological symptoms before relapse, and as a result of relapse itself via appraisals of

entrapment (Birchwood et al., 1993). In Chapter 3, I proposed that there was a need to develop a psychological conceptualisation of relapse which can assist the targeting of relevant cognitive behavioural factors involved in the evolution of relapse and that such a model should account for the relationship between relapse and psychological symptoms and distress. Chapter 5 described an exploratory randomised controlled trial of CBT as a targeted intervention in the prevention of relapse. CBT was delivered during the early signs of relapse and focused on the development of an individualised case formulation of psychological factors associated with relapse acceleration, the modification of negative beliefs concerning illness, and the development and implementation of cognitive or behavioural coping strategies within and between sessions. Receipt of CBT in addition to treatment as usual (TAU) was associated with reduced relapse rate and reduced admission rate. In addition, Chapter 6 reported on the clinical significance of preventing relapse in psychosis, and reported improved remission rates and improved social functioning in prosocial activities at 12-months. Given that this approach to relapse prevention focused on the targeting of negative beliefs concerning self and self in relation to psychosis, and that these beliefs appear to be intimately linked to the development of psychological co-morbidity (Birchwood et al., 1993; Iqbal et al., 2000), it would be reasonable to hypothesise that receipt of CBT would result in reduced psychological distress and morbidity.

The outcome in terms of co-morbid symptoms of anxiety and depression are not reported by a number of CBT trials (Tarrier et al., 1993; Kuipers et al., 1997; Pinto et al., 1999). Kuipers et al., (1997) found no effect for CBT on

measures of self-rated depression. Tarrier et al., (2001) reported on the detailed outcome of their 1998 trial of intensive CBT. Measures of anxiety and depression were examined to investigate whether affective symptoms improved over treatment and whether treatment groups differed at post treatment or in their change. There were no significant effects for time, group or time by group interaction on affective symptoms. Drury et al., (1996b) delivered CBT during the acute psychotic phase of illness and defined clinical recovery as personal recovery from psychotic symptoms, recovery of insight, and the resolution of non-specific symptoms including dysphoria and 'low-level' psychotic thinking. Personal recovery from psychotic symptoms was defined as the lowest rating of hallucinations and delusions achieved over the follow-up period and maintained for at least three consecutive assessment points. Recovery of insight was defined as a score of >9 on the Insight Scale (Birchwood et al., 1994). Resolution of non-specific symptoms was defined as a score of <30 on the Early Signs Scale (Birchwood et al., 1989). Time to clinical recovery was defined as the time to resolution of all three components. Survival analysis using the clinical recovery definition showed that the cumulative proportion failing to recover by 100-days was 50% for CBT and 85% for controls (Wilcoxan Gehan 4.9, $df = 1$, $p < 0.05$). Sensky et al. (2000) examined the outcome of CBT versus befriending (BF) in a group of individuals with chronic drug resistant positive psychotic symptoms. Outcome of treatment was examined in terms of positive symptoms, negative symptoms and depression. At the end of treatment both CBT and BF groups showed significant improvements in positive symptoms, negative symptoms and depression. However at 9-month follow-up, CBT resulted in significantly

greater improvements in positive, negative and depression symptoms compared to BF. Using an outcome criterion of 50% or greater improvement in symptoms as a measure of clinical significance of outcome, 31 of the 46 (67%) participants in CBT achieved this criterion, compared to 22 out of 44 (50%) of the BF group; a non-significant difference.

The results regarding the effectiveness of CBT in the treatment of psychological co-morbidity is both surprising and disappointing. Only one study (Sensky et al., 2000) demonstrates efficacy in the treatment of co-morbid depression, although CBT was not uniquely effective. In addition, whilst the treatment manual adopted in the Sensky et al., study specifically targets anxiety and depression, other treatment manuals also detail techniques and strategies aimed at reducing psychological co-morbidity. Again such a finding may be accounted for by the lack of a specialised psychological conceptualisation of psychological co-morbidity in schizophrenia. For example, Birchwood et al., (2000) found that in a sample of 105 individuals with schizophrenia, 36% developed post psychotic depression (PPD) without concomitant changes in positive and negative symptoms. Iqbal et al., (2000) have proposed that, in line with Gilbert (1992) certain life situations are likely to be depressogenic, particularly if they encapsulate feelings of loss, humiliation and entrapment. In line with their proposal, psychosis is seen as a life event whose appraisal may involve these elements. Participants who developed PPD were more likely than their non-PPD counterparts to attribute the cause of psychosis to themselves, perceive greater loss of autonomy and valued role, and perceive themselves to be entrapped and humiliated by their

illness. Given this finding, it may be that strategies aimed at reducing psychological co-morbidity in schizophrenia should target cognitions and appraisal surrounding the meaning and appraisal of psychosis itself. This may help partially explain the findings of Sensky and colleagues who particularly emphasised a normalising rationale for psychosis early in treatment.

This study therefore seeks to investigate whether CBT targeted on the prevention of relapse will result in the reduction of psychological distress. It is specifically hypothesised that given that negative appraisals of psychosis are associated with the development of secondary psychological morbidity and distress, receipt of CBT will be associated with reduced psychological distress at 12-months. Second, outcome in terms of negative appraisals of psychosis and negative appraisals of self are investigated. It is hypothesised that receipt of CBT will be associated with reduced negative appraisals of psychosis and self at 12-months.

7.2 Method

Methodology, case identification, relapse criteria and outcome are described in Chapter 5. To summarise, 144 participants with a diagnosis of schizophrenia spectrum disorder (DSM-IV; APA, 1994). All participants were in receipt of maintenance antipsychotic medication, were outpatients, and considered relapse prone at entry. Of the 144 participants randomised, 72 were allocated to treatment as usual alone (TAU alone) and 72 were allocated to Cognitive Behavioural Therapy plus TAU (CBT + TAU). Of this group a total of 11 participants dropped out of the study, 5 from TAU alone and 6 from CBT +

TAU. All completers (TAU alone = 67, CBT + TAU = 66) were followed up over the 12 month treatment phase. Participants allocated to CBT + TAU received a 5-session intervention between entry and 3-month assessment. This intervention focused on engagement, assessment and formulation of the key cognitive and behavioural factors hypothesised to be involved in the initiation and acceleration of early relapse. Following this intervention participants in CBT + TAU monitored their own idiosyncratic early signs. Individualised early signs forms were dispatched by post on a fortnightly basis and returned by participants using a stamped addressed envelope. During the study period a total of 28 participants proceeded to the targeted CBT phase following an increase in early signs. Of this group who received the targeted intervention, 5 participants relapsed. A further 5 participants from the CBT + TAU relapsed during the 12-months giving a total of 10 (14.9%) relapses in this group. Of those participants allocated to the TAU alone group, 24 (35.8%) relapsed during the 12-month phase. The differences in the relapse rates between the two groups were significant (χ^2 = 7.7, Df = 1, p = 0.005, Odds ratio = 2.40: 95% CI, 1.25 to 4.62).

7.2.1 Measures

7.2.1.1 Psychological Distress

Psychological distress was measured using the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983; Appendix B). This self rated instrument gives measures across nine symptom dimensions: somatisation, obsessive compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. The BSI gives three

global indices of distress: the Positive Symptom Total (PST), the Positive Symptom Distress Index (PSDI) and the Global Severity Index (GSI). The PST is simply a count of the symptoms which individuals report experiencing to any degree. The PSDI is an intensity of distress measure, corrected for the number of symptoms positively endorsed.

7.2.1.2 Negative appraisals of Psychosis

Participants' appraisal of their psychosis was evaluated using the Personal Beliefs about Illness Questionnaire (PBIQ; Birchwood et al., 1993; Appendix C). The PBIQ is comprised of 16-items rated on a four-point scale and assesses individuals' beliefs in five domains: loss, humiliation, shame, attribution of behaviour to self or to illness, and entrapment in psychosis. The scale has been demonstrated to have good reliability and validity with schizophrenia.

7.2.1.3 Negative appraisals of self

Negative beliefs concerning participants' worth and value were assessed using the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965; Appendix D). The RSES is a ten-item self-report measure of self-esteem. Lyon et al., (1994) describe this measure as a relatively pure measure of subjective self-worth which typically correlates well with other measures of self-esteem (Arnold, 1988).

7.2.2 Data Analysis

Associations between categorical variables at baseline were assessed by use of χ^2, whereas t–test analysis was used to test associations between continuous variables. Pre-treatment differences were examined using one-way ANOVA. The overall sample comprised of 133 participants, although on some of the measures there was a small proportion of missing data.

Prior to analysis data were checked for abnormalities in distribution, presence of outliers, collinearity, and multicollinearity. All continuous variables used in the analysis were examined for skewness. The distributions for the Somatisation and Hostility subscales of the BSI were highly positively skewed (i.e. skew > 1.0, c.f. Ferguson & Cox, 1993), thus logarithmic transformations (log 10 (variable + 1)) were performed on these variables to correct skewness. Presence of outliers was checked by the use of boxplots. Very few outliers were present, and no variables were excluded on this basis.

There were significant group differences between participants in CBT + TAU and participants in TAU alone at baseline. Those randomised to CBT had significantly higher levels of Depression ($p = 0.015$), Psychoticism ($p = 0.035$), Positive Symptom Distress Index ($p = 0.046$), and lower levels of self-esteem ($p = 0.034$).

Table 7.1 Baseline clinical characteristics of treatment groups

Variable	CBT + TAU N = 66	TAU alone n = 67
	Mean (Sd)	Mean (Sd)
Brief Symptom Inventory		
Somatisation	0.9 (0.8)	0.8 (0.8)
Obsessive Compulsive	1.6 (1.1)	1.3 (0.9)
Interpersonal Sensitivity	1.6 (1.2)	1.2 (1.1)
Depression	1.7 (1.2)	1.2 (1.0)
Anxiety	1.3 (1.0)	1.2 (1.0)
Hostility	0.6 (0.8)	0.6 (0.6)
Phobic anxiety	1.5 (1.2)	1.2 (1.2)
Paranoia	1.3 (1.0)	0.9 (0.9)
Psychoticism	1.4 (1.0)	1.0 (0.8)
Global severity Index	1.3 (0.8)	1.0 (0.7)
Positive Symptom Index	29.5 (14.8)	27.0 (13.1)
Positive Symptom Distress Index	2.1 (0.8)	1.8 (0.7)
Personal Beliefs about Illness Questionnaire		
Self versus Illness	9.3 (2.7)	8.9 (2.9)
Entrapment	10.2 (2.4)	10.1 (2.8)
Shame	7.4 (2.1)	7.0 (1.8)
Humiliation	4.5 (0.8)	4.6 (1.0)
Loss	7.7 (2.0)	7.4 (2.4)
Rosenberg Self Esteem Scale	25.0 (6.1)	22.8 (5.4)

The presence of statistically significant differences between the two treatment groups poses a significant statistical problem. Given that participants were randomised to their respective treatment groups it could be argued that there is therefore no need to statistically account for these baseline differences in the subsequent statistical analysis of treatment outcome. In this case the appropriate analysis for these data is repeated measures Analysis of Variance (ANOVA). On the other hand, the presence of statistically significant differences on these important variables at baseline suggests that those randomised to CBT + TAU had significantly higher levels of psychological distress and lower self esteem prior to the provision of the experimental treatment. Given that the level of psychological distress experienced at

baseline is likely to be one highly important factor associated with the level of psychological distress at 12-months it was decided to statistically control for these baseline differences during the analysis of treatment outcome. Therefore an analysis of covariance (ANCOVA) was carried out, with baseline ratings on the dependent variable entered as the covariate, and treatment condition as the independent variable (CBT + TAU versus TAU alone).

7.3 Results

7.3.1 Baseline Characteristics

Baseline scores on the BSI, PBIQ and RSES between treatment groups are shown in Table 7.1. Participants in CBT + TAU had significantly higher levels of depression (t = -2.5, df = 123, p = 0.015, Mean difference = -0.48: 95% CI, -0.86 to –0.05), psychoticism (t = -2.1, df = 123, p = 0.035, Mean difference = -0.36: 95% CI, -0.68 to –0.02), and positive symptom distress index (t = -2.0, df = 123, p = 0.046, Mean difference = -0.27: 95% CI, -0.53 to –0.05) as measured by the Brief Symptom Inventory. In addition, CBT + TAU participants had significantly lower levels of self-esteem (t = 12.1, df = 126, p = 0.034, Mean difference = -2.19: 95% CI, -4.21 to –0.17) as measured by the Rosenberg Self Esteem Inventory. Given these significant differences at baseline, Repeated Measures Analysis of Covariance (ANCOVA) was selected to examine changes in psychological distress (BSI) negative beliefs about illness (PBIQ) and self-esteem (RSES) between CBT + TAU and TAU alone treatment groups over time.

7.3.2 Is CBT effective in reducing psychological distress?

Table 7.2 shows BSI subscale means and standard deviations at pre-treatment, 3-months, 6-months and 12-months. Repeated measures Analysis of Covariance (Tables 7.3 a and b) shows that both groups improved over time on all the BSI subscales and total scores except for Psychoticism ($F(3,321) = 2.3$, $p = 0.077$). There were also significant covariate and time by covariate effects for all subscales and total scores on the BSI. There was a significant time by group effect for Obsessive Compulsive symptoms ($F(3,321) = 3.4$, $p = 0.018$). A Post hoc t-test revealed that differences between CBT + TAU and TAU alone were not significant ($t(123) = 0.1$, $p = 0.929$). There were no significant effects for group on the BSI.

Table 7.2 Means and standard deviations of BSI by CBT + TAU (n=66) and TAU alone (n = 67), at pre – treatment, 2 – month, 6 – month and 12 - month assessment points

Variable	Pre – treatment	3 – months	6 – months	12 – months
	Mean (Sd)	Mean (Sd)	Mean (Sd)	Mean (Sd)
Somatisation				
CBT + TAU	0.9 (0.8)	0.8 (0.7)	0.8 (0.7)	0.7 (0.6)
TAU alone	0.8 (0.8)	0.8 (0.9)	0.6 (0.7)	0.8 (0.8)
Obsessive Compulsive				
CBT + TAU	1.6 (1.1)	1.5 (1.0)	1.5 (1.2)	1.3 (0.9)
TAU alone	1.3 (0.9)	1.2 (1.0)	1.0 (0.9)	1.3 (1.1)
Interpersonal Sensitivity				
CBT + TAU	1.6 (1.2)	1.4 (1.2)	1.4 (1.2)	1.2 (1.1)
TAU alone	1.2 (1.1)	1.3 (1.2)	1.0 (1.0)	1.2 (1.2)
Depression				
CBT + TAU	1.7 (1.2)	1.4 (1.1)	1.4 (1.2)	1.2 (1.0)
TAU alone	1.2 (1.0)	1.2 (1.0)	0.9 (0.9)	1.0 (0.9)
Anxiety				
CBT + TAU	1.2 (1.0)	1.3 (1.0)	1.2 (1.0)	1.0 (0.9)
TAU alone	1.2 (1.0)	1.2 (1.0)	1.0 (0.9)	1.1 (1.0)
Hostility				
CBT + TAU	0.6 (0.8)	0.6 (0.8)	0.6 (0.8)	0.5 (0.6)
TAU alone	0.6 (0.6)	0.6 (0.7)	0.5 (0.7)	0.6 (0.8)
Phobic anxiety				
CBT + TAU	1.5 (1.2)	1.4 (1.1)	1.4 (1.2)	1.2 (1.1)
TAU alone	1.2 (1.2)	1.1 (1.1)	1.1 (1.1)	1.1 (1.1)
Paranoid ideation				
CBT + TAU	1.3 (1.0)	1.2 (1.0)	1.1 (1.1)	1.0 (1.0)
TAU alone	0.9 (0.9)	1.0 (1.0)	0.9 (0.8)	1.0 (1.1)
Psychoticism				
CBT + TAU	1.4 (1.0)	1.3 (1.1)	1.2 (1.1)	1.0 (1.0)
TAU alone	1.0 (0.8)	1.0 (0.9)	0.8 (0.9)	0.9 (1.0)
Global severity index				
CBT + TAU	1.3 (0.8)	1.2 (0.8)	1.2 (0.9)	1.0 (0.7)
TAU alone	1.0 (0.7)	1.0 (0.8)	0.8 (0.7)	1.0 (0.8)
Positive symptom total				
CBT + TAU	29.5 (14.8)	29.3 (14.5)	28.8 (15.5)	26.3 (14.6)
TAU alone	27.0 (13.1)	26.2 (14.3)	23.8 (14.5)	23.9 (15.1)
Positive symptom distress index				
CBT + TAU	2.1 (0.8)	1.9 (0.7)	1.9 (0.8)	1.8 (0.7)
TAU alone	1.8 (0.7)	1.8 (0.8)	1.6 (0.6)	1.8 (0.8)

Table 7.3a Psychological distress at 12-months (CBT + TAU versus TAU alone)

	Adjusted Mean (Standard Error)	F Error (df) =	Sig P =
Brief Symptom Inventory			
Somatisation		Time (3) = 5.3	0.001**
		Time x Covariate (3) = 15.4	0.000***
CBT + TAU	0.77 (0.44)	Time x Condition (3) = 1.7	0.169
		Covariate (1) = 295.3	0.000***
TAU alone	0.77 (0.47)	Condition (1) = 0.0	0.941
Obsessive Compulsive		Time (3) = 3.9	0.009**
		Time x Covariate (3) = 10.7	0.000***
CBT + TAU	1.40 (0.57)	Time x Condition (3) = 3.4	0.018*
		Covariate (1) = 386.6	0.000***
TAU alone	1.35 (0.61)	Condition (1) = 0.4	0.555
Interpersonal Sensitivity		Time (3) = 3.9	0.009**
		Time x Covariate (3) = 11.7	0.000***
CBT + TAU	1.31 (0.72)	Time x Condition (3) = 0.9	0.461
		Covariate (1) = 266.2	0.000***
TAU alone	1.34 (0.76)	Condition (1) = 0.1	0.779
Depression		Time (3) = 3.1	0.027*
		Time x Covariate (3) = 15.8	0.000***
CBT + TAU	1.30 (0.65)	Time x Condition (3) = 1.2	0.315
		Covariate (1) = 276.0	0.000***
TAU alone	1.28 (0.69)	Condition (1) = 0.1	0.787
Anxiety		Time (3) = 5.3	0.001**
		Time x Covariate (3) = 15.5	0.000***
CBT + TAU	1.23 (0.61)	Time x Condition (3) = 1.4	0.253
		Covariate (1) = 280.8	0.000***
TAU alone	1.11 (0.64)	Condition (1) = 1.7	0.192
Hostility		Time (3) = 3.8	0.011*
		Time x Covariate (3) = 13.5	0.000***
CBT + TAU	0.62 (0.05)	Time x Condition (3) = 1.1	0.359
		Covariate (1) = 206.9	0.000***
TAU alone	0.55 (0.05)	Condition (1) = 0.9	0.353
Phobic anxiety		Time (3) = 4.9	0.002**
		Time x Covariate (3) = 15.5	0.000***
CBT + TAU	1.29 (0.63)	Time x Condition (3) = 0.1	0.965
		Covariate (1) = 387.7	0.000***
TAU alone	1.27 (0.66)	Condition (1) = 0.1	0.818
Paranoia		Time (3) = 4.5	0.004**
		Time x Covariate (3) = 12.7	0.000***
CBT + TAU	1.08 (0.61)	Time x Condition (3) = 0.3	0.835
		Covariate (1) = 274.6	0.000***
TAU alone	1.10 (0.64)	Condition (1) = 0.1	0.833

*p < .05, **p < .01, ***p < .001

Table 7.3 b Psychological distress at 12-months (CBT + TAU versus TAU alone)

	Adjusted Mean (Standard Error)	F Error (df) =	Sig P =
Brief Symptom Inventory			
Psychoticism		Time (3) = 2.3	0.077
		Time x Covariate (3) = 9.0	0.000***
CBT + TAU	1.15 (0.65)	Time x Condition (3) = 0.5	0.677
		Covariate (1) = 229.5	0.000***
TAU alone	1.06 (0.68)	Condition (1) = 0.8	0.363
Global severity Index		Time (3) = 2.7	0.047*
		Time x Covariate (3) = 9.0	0.000***
CBT + TAU	1.11 (0.46)	Time x Condition (3) = 1.2	0.316
		Covariate (1) = 344.9	0.000***
TAU alone	1.08 (0.49)	Condition (1) = 0.2	0.652
Positive Symptom Index		Time (3) = 2.7	0.046*
		Time x Covariate (3) = 6.9	0.000***
CBT + TAU	28.06 (0.845)	Time x Condition (3) = 1.1	0.343
		Covariate (1) = 349.8	0.000***
TAU alone	26.15 (0.892)	Condition (1) = 2.4	0.112
Positive Symptom Distress Index		Time (3) = 5.8	0.001**
		Time x Covariate (3) = 13.5	0.000***
CBT + TAU		Time x Condition (3) = 2.4	0.069
		Covariate (1) = 212.0	0.000***
TAU alone		Condition (1) = 0.0	0.901

*p < .05, **p < .01, ***p < .001

7.3.3 Is CBT effective in reducing negative appraisals of psychosis?

Table 7.4 shows PBIQ subscale means and standard deviations at pre-treatment, 3-months, 6-months and 12-months. Repeated measures analysis of covariance (ANCOVA) shows that there were significant time, covariate, and time by covariate effects on all PBIQ subscales. There were no significant group or time by group effects on any of the PBIQ subscales (Table 7.5).

Table 7.4 Means and standard deviations of PBIQ & RSES by CBT + TAU (n=66) and TAU alone (n = 67), at pre – treatment, 2 – month, 6 – month and 12 - month assessment points

Variable	Pre – treatment	3 – months	6 – months	12 - months
	Mean (Sd)	Mean (Sd)	Mean (Sd)	Mean (Sd)
PBIQ				
Self versus Illness				
CBT + TAU	9.3 (2.7)	8.9 (2.4)	8.5 (2.3)	8.6 (2.4)
TAU alone	8.8 (2.9)	8.8 (2.6)	8.7 (2.4)	8.7 (2.2)
Entrapment				
CBT + TAU	10.1 (2.4)	10.0 (2.5)	9.4 (2.2)	9.4 (2.5)
TAU alone	10.1 (2.8)	9.6 (2.8)	9.3 (2.7)	9.7 (2.5)
Shame				
CBT + TAU	7.4 (2.1)	7.1 (1.7)	7.0 (1.8)	6.9 (1.8)
TAU alone	7.0 (1.8)	7.0 (1.9)	6.9 (1.8)	7.1 (1.8)
Humiliation				
CBT + TAU	4.4 (0.8)	4.5 (1.0)	4.6 (1.1)	4.5 (1.1)
TAU alone	4.6 (1.0)	4.5 (1.0)	4.4 (1.2)	4.3 (1.2)
Loss				
CBT + TAU	7.7 (2.0)	7.1 (2.1)	7.1 (2.1)	7.0 (2.1)
TAU alone	7.4 (2.4)	7.3 (2.3)	7.0 (2.3)	7.5 (2.0)
RSES				
CBT + TAU	25.0 (6.1)	23.9 (5.6)	23.8 (5.6)	22.7 (6.3)
TAU alone	22.8 (5.4)	23.5 (5.6)	22.9 (4.7)	23.3 (5.1)

7.3.4 Is CBT effective in negative appraisals of self?

Table 7.4 summarises pre-treatment, 3-month, 6-month and 12-month means and standard deviations for self esteem by treatment group. Using repeated measures analysis of covariance (ANCOVA), there were significant time, covariate, and time by covariate effects for self-esteem. There was a significant group effect ($F(1,113) = 4.6$, $p = 0.034$). However, a post hoc t-test showed that differences between CBT + TAU and TAU alone at 52-weeks were not significant ($t(123) = 0.6$, $p = 0.547$). There was no significant time by group effect for self-esteem (Table 7.5).

Table 7.5 Negative appraisals of psychosis and self at 12-months (CBT + TAU versus TAU alone)

	Adjusted Mean (Standard Error)	F Error (df) =	Sig P =
Personal Beliefs about Illness Questionnaire			
Self versus Illness		Time (3) = 25.0	0.000***
		Time x Covariate (3) = 34.1	0.000***
CBT + TAU	8.74 (0.153)	Time x Condition (3) = 0.6	0.643
		Covariate (1) = 230.3	0.000***
TAU alone	8.85 (0.166)	Condition (1) = 0.2	0.622
Entrapment		Time (3) = 15.1	0.000***
		Time x Covariate (3) = 21.2	0.000***
CBT + TAU	9.80 (0.169)	Time x Condition (3) = 1.2	0.309
		Covariate (1) = 165.3	0.000***
TAU alone	9.70 (0.183)	Condition (1) = 0.2	0.675
Shame		Time (3) = 20.7	0.000***
		Time x Covariate (3) = 25.0	0.000***
CBT + TAU	7.06 (0.114)	Time x Condition (3) = 0.2	0.868
		Covariate (1) = 198.7	0.000***
TAU alone	7.09 (0.124)	Condition (1) = 0.0	0.840
Humiliation		Time (3) = 14.6	0.000***
		Time x Covariate (3) = 15.8	0.000***
CBT + TAU	4.55 (0.076)	Time x Condition (3) = 0.6	0.591
		Covariate (1) = 67.1	0.000***
TAU alone	4.44 (0.082)	Condition (1) = 1.1	0.301
Loss		Time (3) = 11.4	0.000***
		Time x Covariate (3) = 16.1	0.000***
CBT + TAU	7.12 (0.133)	Time x Condition (3) = 1.4	0.237
		Covariate (1) = 256.7	0.000***
TAU alone	7.37 (0.143)	Condition (1) = 1.7	0.197
Rosenberg Self Esteem Scale		Time (3) = 9.6	0.000***
		Time x Covariate (3) = 11.7	0.000***
CBT + TAU		Time x Condition (3) = 2.4	0.064
		Covariate (1) = 460.5	0.000***
TAU alone		Condition (1) = 4.6	0.034*

*p < .05,***p < .001

7.4 Discussion

The study examined the effect of CBT for relapse on measures of psychological distress, negative appraisals of psychosis, and negative appraisals of self. The study did not find any evidence that receipt of CBT in addition to TAU was associated with reduced psychological distress, negative appraisals of self and psychosis at 52-weeks. On the other hand, there were significant time effects on all these variables, showing that in general, and amongst this group of participants, levels of psychological distress, negative appraisals of psychosis, and negative appraisals of self improve over time. Therefore, given that the CBT examined in the present study was targeting negative appraisals of self and psychosis, and these appraisals are linked to the development of psychological distress (Birchwood et al., 1993; Iqbal et al., 2000), then why did the treatment in this study not result in reduced psychological distress and negative appraisals of self and psychosis?

The format of CBT examined in this study was specifically tailored to the detection and prevention of relapse. This treatment targeted negative appraisals of self and psychosis during the early stages of relapse. Whilst these beliefs are known to mediate the development of psychological distress, the format of treatment may not have permitted generalisation of context specific treatment effects concerning relapse to more generic self-representations related to psychological morbidity. Research suggests that the origins of the beliefs targeted during early signs of relapse probably lie in the early experience of the initial episodes of psychosis (e.g. Iqbal et al., 2000). Iqbal et al., (2000) have proposed that, in line with Gilbert (1992) certain life situations

are likely to be depressogenic, particularly if they encapsulate feelings of loss, humiliation and entrapment. In line with their proposal, psychosis is seen as a life event whose appraisal may involve these elements. Furthermore, Jackson & Iqbal (2000) suggest that the impact of psychosis can be understood with reference to trauma theory (e.g. Janoff-Bulman, 1992) and propose that psychosis can act to undermine or indeed "shatter" pre-existing assumptions about self, world and future, or indeed, for those who have experienced early adversity, psychosis may confirm premorbid beliefs concerning personal vulnerability and negative evaluation. Drayton et al., (1998) found that those individuals who seal over or deny significant aspects of their illness were more likely to view their early experience of parenting as less caring, than those who were categorised as integrators. In this sense, sealing over may represent a marker of psychological vulnerability arising from the interaction between early experience and psychosis, as proposed by Fowler et al., (2000).

Therefore it is likely that CBT designed specifically for the treatment of psychological distress may well require a more extended treatment protocol focused on the modification and transformation of negative beliefs concerning self and psychosis. If successful such a treatment could have a number of advantages over the treatment examined in this study. Obviously a more extended protocol designed for the treatment of psychological co-morbidity should result in reduced psychological distress. However, if successful such a treatment should result in improved negative appraisals of self and psychosis. Given that these self-representations are implicated in vulnerability to relapse (Chapter 5) and are associated with social functioning (Chapter 6), a more

extended treatment may also reduce medium to long-term vulnerability to relapse, and produce more widespread improvements in social functioning. In addition, such a treatment may reduce the necessity to rely on implementing targeted phases of treatment during periods of increased relapse risk. These hypotheses could be addressed in future treatment outcome research in CBT for psychosis.

The finding that receipt of the CBT employed in this study resulted in reduced relapse and admission (Chapter 5) and improved remission and prosocial functioning (Chapter 6) but did not produce changes in psychological distress and negative appraisals of self and psychosis also begs important theoretical questions. The CBT targeted negative appraisals of self and psychosis in the specific context of early signs of relapse. It may therefore be possible that the beliefs targeted amongst those participants who received targeted CBT were specific to that context, and that any changes in those beliefs during that phase were not elaborated to corresponding or associated mental representations. If this is the case then future experimental research could investigate biases in cognitive processes amongst individuals who are at high risk of relapse versus those who are low risk of relapse, or amongst individuals during remission and during early relapse. For example, it is now well established that clinical anxiety patients commonly display an encoding advantage for threat-related information (Macleod, 1990, 1991; Macleod & Mathews, 1991) which has been demonstrated through the use of the Stroop colour naming interference paradigm (Stroop, 1938). Anxiety patients have difficulty ignoring the content of threat-related words, revealed by disproportionately long colour naming

latencies for these words in comparison to non-threat words. In contrast anxiety patients typically do not show facilitated recall or recognition memory for threat-related stimuli (Macleod, 1990, 1991; Macleod & Mathews, 1991). Such explicit memory tasks require subjects to consciously recollect previously presented stimulus items. In contrast, implicit memory tasks do not require conscious recollection of past experience but assess retention by assessing the degree to which previous exposure to stimulus items passively serves to facilitate subsequent processing of the same stimuli. A number of investigators (Mathews et al., 1989; Zeitlin & McNally, 1991; Richards & French, 1991; Macleod & McLaughlin, 1995) have found that anxiety patients have an implicit memory bias for threat-related words. According to Graf & Mandler (1984) integration of stimulus information is an automatic process that strengthens the internal structure of a stimulus representation, thus making that representation more accessible in the sense that activation of any part will serve to activate the whole. In consequence, stimuli corresponding to representations that are in a high state of integration will tend to 'pop out' of the stimulus array, and hence will tend to be selectively encoded. In contrast, elaboration is a strategic process that serves to establish and strengthen associative connections between a mental representation and other existing representations in memory. A highly elaborated representation will be disproportionately easy to retrieve on intentional memory tasks, such as recall and recognition. Williams et al., (1988) hypothesise that elevated anxiety is characterised by emotionally congruent integrative processing but not emotionally congruent elaborative processing, which accounts for the finding that anxious patients show emotionally congruent encoding biases, implicit

memory biases, but not explicit memory biases. Such an account has an appealing application to relapse in psychosis and could be investigated in experimental research. If correct, then during relapse, individuals would show emotionally congruent encoding biases, and implicit memory biases, but not explicit memory biases in comparison with individuals who are stable and remitted. In addition those at high risk of relapse would show a similar pattern of results in comparison with those who are at low risk. In terms of the form of CBT employed in this study, the strategies employed may have addressed emotionally congruent integrative processing as opposed to emotionally congruent elaborative processing, which would account for the failure of CBT to result in improvements in psychological distress and negative appraisals of self and psychosis in comparison to TAU alone. Furthermore context specific changes in negative beliefs about self and psychosis could be investigated in longitudinal studies. As the present study examined these appraisals at entry, 3-months, 6-months and 12-months it would be possible to examine changes in these appraisals amongst relapsers and non-relapsers over time. Chapter 8 will now investigate this question.

Chapter 8

Negative appraisals of self and psychosis and the development of psychological co-morbidity: an explorative analysis of relapsers and non-relapsers.

8.1 Introduction

In Chapter 2, eight studies (Subotnik & Neuchterlein, 1988; Birchwood et al. 1989; Gaebel et al. 1993; Jolley et al. 1990; Jorgensen, 1998; Marder et al. 1991; Marder et al. 1994; Tarrier et al. 1991) which have reported the sensitivity and specificity of early "prodromal" signs to relapse were reviewed. The findings on sensitivity ranged from 8 to 88%, and specificity from 64 to 93%. Strict comparison across these studies was problematic given the nature of differences in methodology and design. It was, however, clear that when studies included positive symptoms or incipient psychosis in their definitions of "prodromes" (Subotnik & Nuechterlein, 1988; Birchwood et al., 1989; Tarrier et al., 1991; Jorgensen, 1998), this inclusion increased the sensitivity of "prodromes" to relapse. This finding questions the very basis of the concept of the prodrome itself. Prodromes are viewed as dichotomous phenomena; that is events, which occur before a relapse. The inclusion of low level positive psychotic symptoms, such as ideas of reference or thought control, changes the concept of relapse to a more continuous model, where the appearance of increased dysphoric symptoms represent an individual's response to the re-emergence of psychotic symptoms. Such a continuous model of relapse therefore sees apparent prodromal signs, as evidence of early stages of relapse. The consistency of the findings on specificity, which are reported across these studies (64 to 93%), is supportive of this proposal. That is, when non-psychotic symptoms increase they are almost always, but not inevitably followed by a relapse in positive psychotic symptoms.

Chapter 3 examined the possible psychological factors, which may account for

the idiosyncratic nature of dysphoric responses during early relapse. For example, Birchwood (1995) pointed out that the individual variations in the nature and timing of early signs will act to reduce their apparent amplitude in group studies. Group studies fail to capture the qualitative and quantitative differences between individuals in their early signs. Therefore it may be more appropriate to think of early signs as an individualised configuration of symptoms which Birchwood refers to as a 'relapse signature'. Birchwood (1995) accounts for this variation in the nature and timing of early signs by integrating individual's own idiosyncratic response to emerging relapse. This cognitive explanation for the variation in early signs suggests that dysphoric symptoms such as anxiety, tension, withdrawal, depressed mood, suspiciousness, and sleeplessness arise from the way in which individuals explain and interpret internal and external events. Birchwood (1995) proposes that the attributions made by individuals to account for and explain the emergence of disturbing symptoms can serve to either accelerate or retard the process of relapse. In this model, dysphoria is seen as a response to the fear of impending relapse (perhaps for those with previous experience of relapse) or a failure to explain symptoms and experiences (perhaps for those with less experience of relapse). This model might therefore predict that those individuals with extensive prior experience of relapse and its associated negative repercussions would respond with high levels of fear and perhaps helplessness leading to depression and withdrawal. On the other hand, those with less experience may respond with puzzlement, confusion and perplexity. The model may also help explain the speed at which relapse proceeds by specifying the cognitive mechanisms and associated emotional consequences

responsible for acceleration. In Chapter 3, I proposed that the definitions, which are currently used to capture sensitivity of early signs could well benefit from definitions more closely allied to how individuals' appraise their experience of psychosis rather than relying on a more closely delineated set of individual signs and symptoms alone. For example, for an individual a combination of signs and symptoms such as increased sleep disturbance, reduced attention and concentration and increased agitation may trigger negative beliefs concerning the control of (e.g. "I can't control my illness"), or consequences of relapse (e.g. "I'll let everyone down", "I'm a failure"). If the clinician pays sole attention to the occurrence of specific signs and symptoms, they risk failing to capture the central meanings experienced by the individual. Therefore, configurations of early signs which are more closely allied to the schematic meanings activated during early relapse may increase sensitivity, and reduce the apparent variance in the nature and timing of experiences signaling future relapse. Second, the activation of negative beliefs concerning psychosis results in a range of negative automatic thoughts, distressing emotions, and safety behaviours, which may lead to the acceleration of relapse. Therefore the activation of negative beliefs about self, and self in relation to psychosis constitute the central engine responsible for relapse acceleration. Interventions targeted on these beliefs during the early relapse phase may therefore be effective in preventing or ameliorating relapse. In Chapter 5, I provided some preliminary evidence that negative appraisals of self and entrapment in illness were predictive of relapse, and that negative appraisals of self were predictive of duration to relapse. These findings were interpreted as evidence of a role for these cognitive factors in conferring a

vulnerability to relapse.

However, negative appraisals of self and psychosis have also been found to be associated with the development of Post Psychotic Depression (PPD; Birchwood et al., 2000; Iqbal et al., 2000). Birchwood et al., (2000) found that in a sample of 105 individuals with schizophrenia, 36% (n = 28) developed PPD without concomitant changes in positive and negative symptoms. Iqbal et al., (2000) have proposed that, in line with Gilbert (1992) certain life situations are likely to be depressogenic, particularly if they encapsulate feelings of loss, humiliation and entrapment. In line with their proposal, psychosis is seen as a life event whose appraisal may involve these elements. Participants who developed PPD were more likely than their non-PPD counterparts to attribute the cause of psychosis to themselves, perceive greater loss of autonomy and valued role, and perceive themselves to be entrapped and humiliated by their illness. In the same study, Iqbal et al., (2000) did not find that individuals who relapsed (n = 11, 10.5%) during the study, differed from non-relapsers without PPD (n = 31, 29.5%) in their appraisal of psychosis (loss, humiliation and entrapment), insight, self-esteem, sociotrophy, self-efficacy or self-criticism. Iqbal and colleagues concluded that "there were no cognitive vulnerability factors for psychotic relapse, in stark contrast to PPD: different processes would seem to be in operation" (p 526). However differences between these groups on appraisals of shame and attribution of blame for illness are not reported. How can these disparate findings be reconciled? Birchwood and colleagues propose that according to the social ranking theory of depression (Gilbert, 1992):

> *"The effect of powerful and oppressive experiences (or shattering life events, such as psychotic illness).... Initiates an internal defensive mechanism that forces the individual to 'down-rank' and yield to others, particularly if escape is blocked (entrapment). This mechanism may be accompanied by cognitions that are 'self-attacking' leading to feelings of inferiority and self-blame."* (p. 526)

If Birchwood and colleagues' proposal is correct then (1) relapse will be associated with the development of psychological co-morbidity and, (2) relapse itself will be associated with increasing negative appraisals concerning psychosis.

Abramson et al., (1978) have proposed that individuals who are vulnerable to depression tend to explain negative events in terms of being caused by themselves (internal to self), unlikely to change over time (stable) and likely to pervade all areas of their lives (global). This theory was later developed to suggest that a stable and global attributional style for negative events represents a cognitive vulnerability to depression that in the context of stressful life events generates hopelessness and helplessness (Abramson et al. 1989). The Temple-Wisconsin Cognitive Vulnerability to Depression project found that non-depressed, euthymic individuals who have such a pessimistic attributional style combined with dysfunctional attitudes towards self evaluation are at high risk of developing depression at a later date (Alloy et al., 1999).

The findings in Chapter 5, suggest that individuals who go on to relapse already have greater feelings of inferiority and self-criticism (Rosenberg Self Esteem Scale) and perceive themselves as unable to control by their psychosis (entrapment). Therefore with their perception of escape from psychosis blocked it is hypothesised that individuals will react to the reemergence of psychosis with increased self-blaming attributions, a sense shame and humiliation, and an increased perception of loss of autonomy and social role. Through these appraisals of their psychosis, relapse will therefore be associated with the emergence of psychological comorbidity.

8.2 Method

Methodology, case identification, and criteria for relapse are described in Chapter 5. To summarise briefly, 144 individuals with a diagnosis of a schizophrenia spectrum disorder, who were outpatients, receiving antipsychotic medication, and considered relapse prone, were entered into a pragmatic clinical trial of Cognitive Behavioural Therapy for relapse. Participants were randomly allocated to receive treatment as usual (TAU alone) or TAU plus Cognitive Behavioural Therapy (CBT + TAU). Relapse was identified prospectively, and assessments were carried out at four time points: at entry, 12 weeks, 26 weeks, and 52 weeks. A total of 133 participants completed the study (66 CBT + TAU and 67 TAU). Amongst this completers group 34 relapses were identified over 12-months; 10 (14.9%) in CBT + TAU and 24 (35.8%) from TAU alone.

8.2.1 Hypotheses

First, relapsing participants will show increasing negative appraisals of psychosis over time, in comparison to non-relapsing participants.

Second, relapsing participants will show increasing negative appraisals of self over time, in comparison to non-relapsing participants.

Third, relapsing participants will show higher levels of psychological co-morbidity at 12-months, in comparison to non-relapsing participants.

8.2.2 Measures

8.2.2.1 Negative appraisals of psychosis

Cognitive vulnerability to relapse was assessed using two measures. First, participants' appraisal of their illness was evaluated using the Personal Beliefs about Illness Questionnaire (PBIQ; Birchwood et al., 1993; Appendix C). The PBIQ is comprised of 16-items rated on a four-point scale and assesses individuals' beliefs in five domains: loss, humiliation, shame, attribution of behaviour to self or to illness, and entrapment in psychosis. The scale has been demonstrated to have good reliability and validity with schizophrenia.

8.2.2.2 Negative appraisals of self

Negative beliefs concerning participants' worth and value were assessed using the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965; Appendix D). The RSES is a ten-item self-report measure of self-esteem. The scale was originally developed as a measure to assess self-esteem in adolescents but has

been widely used in adult populations. Rosenberg (1965) proposed a complex scoring system, which was simplified by Corcoran & Fischer, (1987). Items are in statement form, and respondents are asked to rate their agreement on a four point Guttman Scale (strongly agree to strongly disagree). The RSES gives a score range of 4 to 40, with higher scores indicating lower self-esteem.

8.2.2.3 Psychological co-morbidity

Psychological distress was measured using the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983; Appendix B). This self-rated instrument gives measures across nine symptom dimensions: somatisation, obsessive - compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. The BSI gives three global indices of distress: the Positive Symptom Total (PST), the Positive Symptom Distress Index (PSDI) and the Global Severity Index (GSI). The PST is simply a count of the symptoms which individuals report experiencing to any degree. The PSDI is an intensity of distress measure, corrected for the number of symptoms positively endorsed. According to Derogatis & Melisaratos (1983) PSDI functions as a measure of response style, communicating whether an individual is 'augmenting' or 'attenuating' distress in their manner of reporting. According to the authors, the GSI is the single best indicator of current distress levels. The GSI combines information on the numbers of symptoms reported, and the intensity of perceived distress associated with those symptoms.

8.2.3 Data Analysis

Participants who were in the CBT + TAU group were excluded from the analysis because the therapy, which entailed interventions before and during the early relapse phase included interventions targeted at reducing negative appraisals of self and psychosis, and psychological distress, could have altered the relationships between the variables. Indeed the CBT deliberately manipulated many of the variables considered in the analysis described below. Therefore, a longitudinal analysis was conducted on participants in the TAU alone group. Comparison of baseline characteristics of relapsers (n = 24, 35.8%) and non-relapsers (n = 43, 64.2%) was made using Multivariate ANOVA. Changes over time in negative appraisals of self and psychosis between relapsers and non-relapsers were examined using Repeated Measures ANOVA. Psychological distress was examined using Multivariate ANOVA controlling for any pre-treatment differences in baseline measures.

8.2.4 Baseline Characteristics

Table 8.1 below summarises the baseline ratings on the PANSS and the BSI of the study sample of participants in TAU. There were no significant differences between the two groups. Table 7.1 also summarises the baseline ratings of the PBIQ and RSES. There were no significant differences between relapsers and non-relapsers on subscales of the PBIQ. Relapsers had significantly higher baseline scores on the Rosenberg Self Esteem Scale indicating higher negative appraisals of self ($F(1, 59) = 4.6$, $p = 0.036$).

Table 8.1 Baseline characteristics (PANSS & BSI) of relapsers versus non-relapsers in TAU

	Relapsers N = 20	Non-relapsers n = 40	F 1, 59	Sig p =
	Mean (s.d.)	Mean (s.d.)		
Positive and Negative Syndrome Scale				
Positive symptoms	10.90 (2.71)	10.15 (2.61)	1.1	0.305
Negative symptoms	12.75 (6.34)	12.18 (4.48)	0.2	0.686
Global Psychopathology	29.00 (7.09)	29.00 (6.43)	0.0	1.000
Brief Symptom Inventory (BSI)				
Somatisation	0.98 (0.99)	0.65 (0.69)	2.2	0.140
Obsessive compulsive	1.62 (1.08)	1.16 (0.78)	3.6	0.063
Interpersonal sensitivity	1.30 (1.08)	1.16 (1.14)	0.2	0.661
Depression	1.45 (1.15)	1.11 (0.86)	1.7	0.199
Anxiety	1.41 (1.14)	1.07 (0.87)	1.6	0.209
Hostility	0.75 (0.77)	0.49 (0.47)	2.6	0.111
Phobic anxiety	1.42 (1.32)	1.01 (1.05)	1.7	0.192
Paranoid ideation	1.24 (0.97)	0.81 (0.82)	3.2	0.080
Psychoticism	1.27 (1.01)	0.86 (0.71)	3.4	0.070
Global severity index (GSI)	1.26 (0.91)	0.93 (0.56)	3.1	0.082
Positive symptom total (PST)	29.90 (13.71)	25.25 (12.76)	1.7	0.200
Positive symptom distress index (PSDI)	1.98 (0.74)	1.78 (0.71)	1.0	0.330
Personal beliefs about Illness Questionnaire (PBIQ)				
Self versus illness	9.1 (3.13)	8.65 (2.90)	0.3	0.583
Entrapment	10.60 (2.64)	9.78 (3.02)	1.1	0.303
Shame	7.15 (0.42)	6.90 (0.30)	0.2	0.627
Humiliation	4.80 (0.24)	4.45 (0.17)	1.5	0.233
Loss	7.20 (0.55)	7.35 (0.39)	0.1	0.826
Rosenberg Self Esteem Scale	24.70 (1.18)	21.60 (0.83)	4.6	0.036*

*$p < .05$

8.3 Results

8.3.4 Do relapsing participants show increasing negative appraisals of psychosis?

The findings from the repeated measures analysis of variance on negative appraisals of psychosis (PBIQ) are summarised in Table 8.2 below. There were no significant time effects for any of the PBIQ subscales. There were significant group effects for self versus illness ($F(1,52) = 5.8$, $p = 0.020$), and entrapment ($F(1, 52) = 6.1$, $p = 0.017$), with relapsers having significantly higher ratings of self-blame for illness (Figure 8.1), ($t(58) = -2.6$, $p = 0.012$) and higher levels of perceived entrapment (Figure 8.2), ($t(58) = -2.1$, $p = 0.04$). Simple effects F – tests revealed those differences in appraisal of self-blame emerged at 12-weeks ($F(1,52) = 4.5$, $p = 0.038$) and were maintained through 26-weeks ($F(1,52) = 12.6$, $p = 0.001$) to 52-weeks ($F(1,52) = 6.2$, $p = 0.016$). Simple effects F – tests revealed those differences in appraisal of entrapment emerged at 26-weeks ($F(1,52) = 8.8$, $p = 0.004$) and were maintained at 52-weeks ($F(1,52) = 4.7$, $p = 0.035$).

There were significant time by group effects found for self versus illness ($F(3,156) = 2.9$, $p = 0.038$), shame ($F(3,156) = 4.0$, $p = 0.009$), and loss ($F(3,156) = 2.8$, $p = 0.041$). Simple effects F – tests revealed that differences in the appraisal of shame (Figure 8.3) emerged at 26-weeks ($F(1,52) = 13.8$, $p = 0.001$). No significant group differences were observed for appraisals of loss or humiliation.

Table 8.2 Analysis of variance and Simple Effects on PBIQ for relapsers and non-relapsers

	df	F	P	Comparison
Entrapment				
Factor A (time of assessment)	3,156	1.6	0.211	t (58) = -2.105, p = 0.04
Factor B (treatment group)	1,52	6.1	0.017*	1 > 2
Interaction (A X B)	3,156	2.4	0.127	
Simple effects (SS, Factor A)				
Entry	1,52	0.7	0.422	
12-weeks	1,52	3.8	0.058	
26-weeks	1,52	8.8	0.004**	
52-weeks	1,52	4.7	0.035*	
Shame				
Factor A (time of assessment)	3,156	0.4	0.769	t (58) = -1.529, p = 0.132
Factor B (treatment group)	1,52	3.8	0.058	
Interaction (A X B)	3,156	4.0	0.009**	
Simple effects (SS, Factor A)				
Entry	1,52	0.0	0.913	
12-weeks	1,52	1.5	0.234	
26-weeks	1,52	13.8	0.001**	
52-weeks	1,52	1.5	0.219	
Humiliation				
Factor A (time of assessment)	3,156	1.1	0.366	
Factor B (treatment group)	1,52	0.8	0.365	
Interaction (A X B)	3,156	0.5	0.655	
Simple effects (SS, Factor A)				
Entry	1,52	0.8	0.387	
12-weeks	1,52	0.0	0.928	
26-weeks	1,52	0.2	0.696	
52-weeks	1,52	1.8	0.187	
Self versus Illness				
Factor A (time of assessment)	3,156	0.3	0.837	t (58) = -2.597, p = 0.012
Factor B (treatment group)	1,52	5.8	0.020*	1 > 2
Interaction (A X B)	3,156	2.9	0.038*	
Simple effects (SS, Factor A)				
Entry	1,52	0.2	0.649	
12-weeks	1,52	4.5	0.038*	
26-weeks	1,52	12.6	0.001**	
52-weeks	1,52	6.2	0.016*	
Loss				
Factor A (time of assessment)	3,156	1.2	0.308	t (58) = -1.594, p = 0.116
Factor B (treatment group)	1,52	0.1	0.822	
Interaction (A X B)	3,156	2.8	0.041*	
Simple effects (SS, Factor A)				
Entry	1,52	0.5	0.474	
12-weeks	1,52	0.1	0.712	
26-weeks	1,52	0.8	0.370	
52-weeks	1,52	1.3	0.264	

*p < 0.05, ** p < 0.01, *** p < 0.001.

1 = Relapsers, 2 = Non-relapsers

Figure 8.1 Appraisals of Self versus Illness (Relapsers versus Non-relapsers)

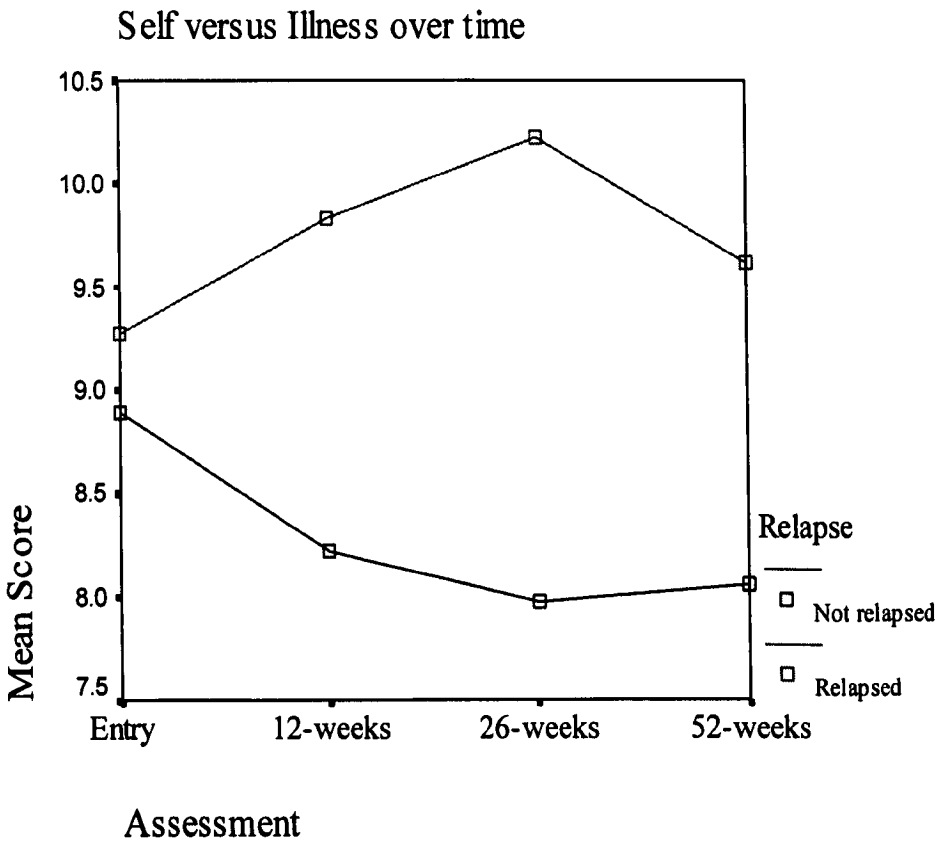


Figure 8.2 Appraisals of entrapment of illness (Relapsers versus Non-relapsers)

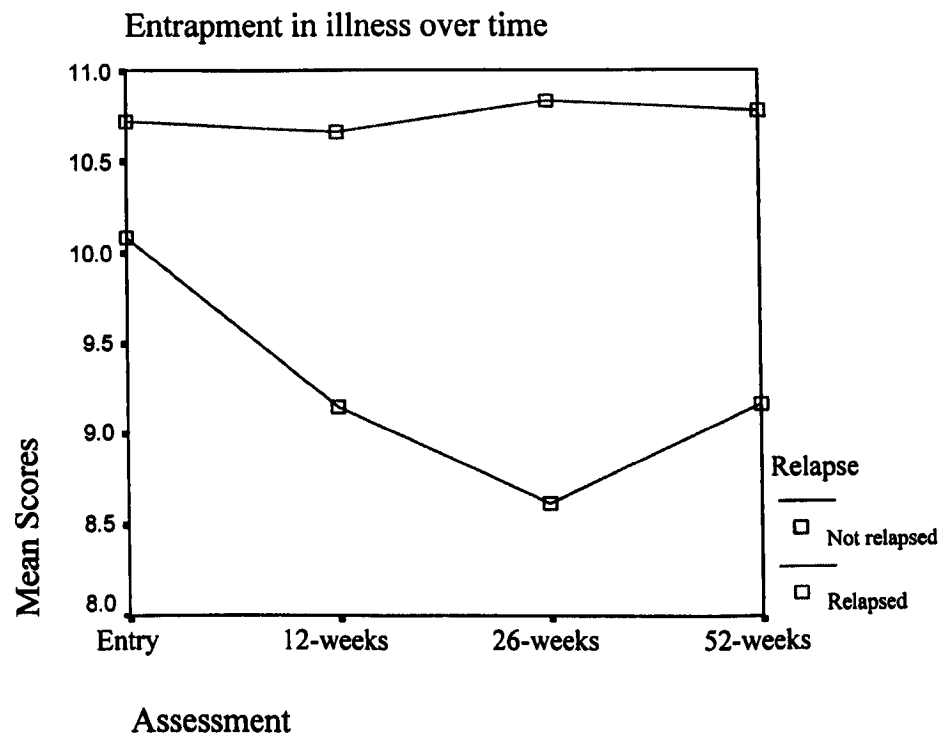
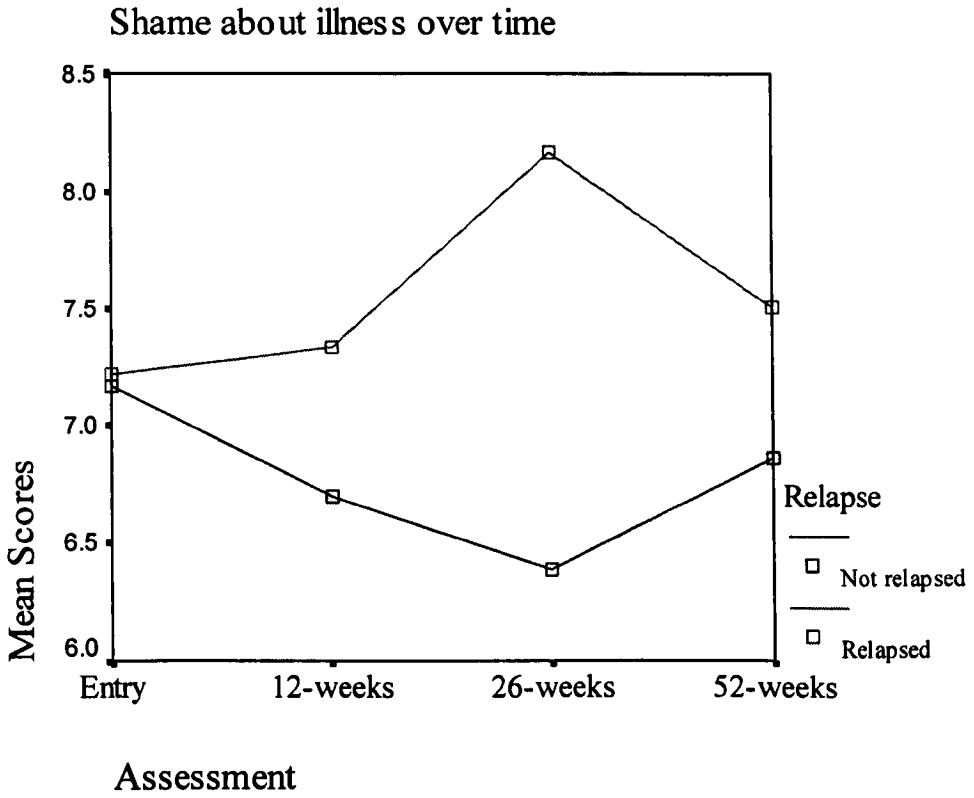


Figure 8.3 Appraisals of Shame about illness (Relapsers versus Non-relapsers)



8.3.5 Do relapsing participants show increasing negative appraisals of self?

The findings from the repeated measures analysis of variance on negative appraisals of self (RSES) are summarised in Table 8.3 below. There were no significant time, group, or time by group effects observed. Simple effects *F* – tests revealed that there were differences at 26-weeks (F (1,52) = 4.5, p = 0.039), with relapsers having higher negative appraisals of self (Figure 8.4).

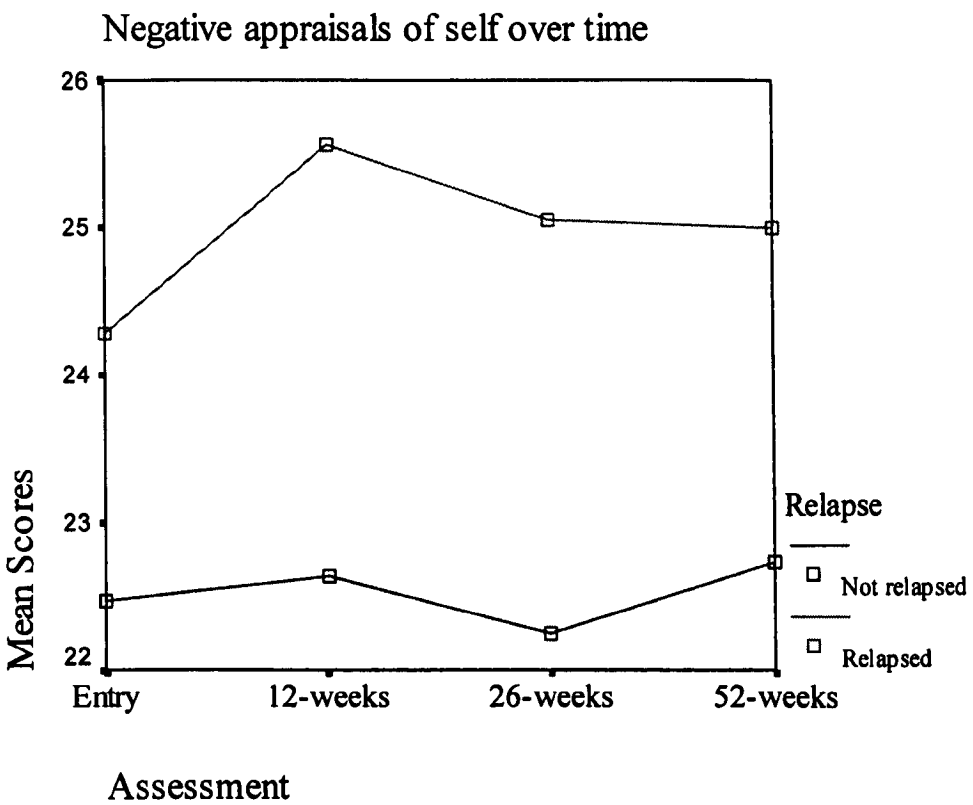
Table 8.3 Analysis of variance and Simple Effects on RSES for relapsers and non-relapsers

	df	F	P	Comparison
Rosenberg Self-Esteem Scale				
Factor A (time of assessment)	3,156	0.4	0.724	
Factor B (treatment group)	1,52	3.9	0.054	
Interaction (A X B)	3,156	0.3	0.820	
Simple effects (SS, Factor A)				
Entry	1,52	1.5	0.232	
12-weeks	1,52	3.3	0.077	
26-weeks	1,52	4.5	0.039*	
52-weeks	1,52	2.4	0.125	

*$p < 0.05$

1 = Relapsers, 2 = Non-relapsers

Figure 8.4 Negative appraisals of self (Relapsers versus Non-relapsers)



8.3.3 Do relapsing participants show higher levels of psychological co-morbidity at 12-months?

Significant differences were observed between relapsers and non-relapsers on the Rosenberg Self Esteem Scale at baseline, with relapsers having significantly higher baseline scores on the Rosenberg Self Esteem Scale indicating higher negative appraisals of self ($F(1, 59) = 4.6$, $p = 0.036$). Therefore analysis of psychological co-morbidity at 12-months was conducted using Multivariate Analysis of Covariance (MANCOVA) with baseline scores for Rosenberg Self-Esteem Scale entered as the covariate. Tables 8.4 a and b show that significant covariate effects were observed for the following BSI subscales; Interpersonal Sensitivity ($F(1, 54) = 15.0$, $p < 0.001$), Depression ($F(1, 54) = 12.6$, $p = 0.001$), Phobic anxiety ($F(1, 54) = 5.2$, $p = 0.026$), Psychoticism ($F(1, 54) = 5.9$, $p = 0.018$), and Global Severity Index ($F(1, 54) = 5.5$, $p = 0.023$).

After adjusting for baseline Rosenberg Self Esteem scores, relapsers had significantly higher levels of Somatisation ($F(2,54) = 7.3$, $p = 0.002$), Obsessive Compulsive symptoms ($F(2, 54) = 4.8$, $p = 0.012$), Interpersonal Sensitivity ($F(2, 54) = 11.6$, $p < 0.001$), Depression ($F(2, 54) = 10.2$, $p < 0.001$), Anxiety ($F(2, 54) = 3.6$, $p = 0.034$), Phobic anxiety ($F(2, 54) = 4.8$, $p = 0.012$), Psychoticism ($F(2, 54) = 5.4$, $p = 0.007$), Global Severity ($F(2, 54) = 6.7$, $p = 0.006$).

Table 8.4 a Psychological morbidity at 12-months (Relapsers versus Non-relapsers)

	Relapsers N = 20	Non-relapsers n = 38	F Error df = 54	Sig p =
	Mean (s.d.)	Mean (s.d.)		
Brief Symptom Inventory (BSI)				
Somatisation	1.24 (1.01)	0.53 (0.54)	Covariate (1) = 2.3 Main effect (1) = 9.4 Interaction (2) = 7.3	0.139 0.003** 0.002**
Obsessive compulsive	1.82 (1.86)	1.03 (0.99)	Covariate (1) = 2.3 Main effect (1) = 5.3 Interaction (2) = 4.8	0.138 0.026* 0.012*
Interpersonal sensitivity	1.71 (1.24)	0.92 (1.05)	Covariate (1) = 15.0 Main effect (1) = 3.5 Interaction (2) = 11.6	0.000*** 0.065 0.000***
Depression	1.47 (1.05)	0.84 (0.81)	Covariate (1) = 12.6 Main effect (1) = 3.6 Interaction (2) = 10.2	0.001** 0.065 0.000***
Anxiety	1.42 (1.15)	0.90 (0.87)	Covariate (1) = 3.3 Main effect (1) = 2.2 Interaction (2) = 3.6	0.073 0.144 0.034*
Hostility	0.84 (1.07)	0.42 (0.52)	Covariate (1) = 0.5 Main effect (1) = 4.5 Interaction (2) = 2.3	0.487 0.038* 0.112
Phobic anxiety	1.49 (1.26)	0.88 (1.00)	Covariate (1) = 5.2 Main effect (1) = 2.3 Interaction (2) = 4.8	0.026* 0.138 0.012*
Paranoid ideation	1.25 (1.25)	0.90 (0.99)	Covariate (1) = 0.7 Main effect (1) = 0.9 Interaction (2) = 1.0	0.423 0.348 0.372
Psychoticism	1.24 (1.21)	0.69 (0.77)	Covariate (1) = 5.9 Main effect (1) = 2.5 Interaction (2) = 5.4	0.018* 0.124 0.007**

*p < .05, **p < .01, ***p < 0.001

Table 8.4 b Psychological morbidity at 12-months (Relapsers versus Non-relapsers)

	Relapsers N = 20	Non-relapsers n = 38	F Error df = 54	Sig p =
	Mean (s.d.)	Mean (s.d.)		
Brief Symptom Inventory (BSI)				
Global severity index (GSI)	1.36 (0.98)	0.78 (0.64)	Covariate (1) = 5.5 Main effect (1) = 4.8 Interaction (2) = 6.7	0.023* 0.033* 0.003**
Positive symptom total (PST)	27.25 (16.30)	22.16 (14.21)	Covariate (1) = 1.6 Main effect (1) = 0.8 Interaction (2) = 1.6	0.207 0.367 0.214
Positive symptom distress index (PSDI)	2.03 (0.86)	1.65 (0.74)	Covariate (1) = 1.9 Main effect (1) = 2.0 Interaction (2) = 2.5	0.174 0.168 0.091

*p < .05, **p < .01, ***p < 0.001

8.4 Discussion

It has already been demonstrated that CBT was associated with significant reductions in relapse and admission rates (Chapter 5), and improvements in remission and social functioning (Chapter 6). This Chapter has sought to investigate the links between the theory proposed in Chapters 3 and 4 and the outcome of relapsers versus non-relapsers. To summarise briefly, the conceptualisation of relapse proposed that negative beliefs concerning self and self in relation to psychosis represent a cognitive vulnerability to relapse (Birchwood, 1995; Gumley et al., 1999; Chapter 3). These beliefs are proposed to have their origins in the early episodes of psychosis (e.g. Iqbal et al, 2000) and result from a process of a search for meaning and integration with pre-morbid beliefs about self, world and future (Fowler et al., 2000; Jackson & Iqbal, 2000).

Therefore this study sought to examine the stability of negative appraisals of self and psychosis amongst relapsers and non-relapsers over a one-year period. Negative appraisals of self and entrapment appeared to show remarkable stability over time amongst relapsers. In Chapter 5 negative beliefs about self and entrapment were found to be predictive of relapse, whilst negative beliefs about self were predictive of duration to relapse. These findings were interpreted as evidence of a cognitive vulnerability to relapse in psychosis. The relative stability of these appraisals over time amongst relapsers and non-relapsers is consistent with this proposal.

Consistent with the predictions made by Birchwood (1995) and Gumley et al., (1999) the results from this study suggest that relapse is associated with increasing negative appraisals of psychosis. Specifically, increasing negative appraisals of self versus illness and shame about illness were associated with relapsers, whilst there appeared to be relative stability in these appraisals amongst non-relapsers. Within the relapsers group, appraisals of self versus illness increased between entry and 12-weeks, whilst appraisals of shame increased between 12-weeks and 26-weeks. Given that the mean duration to relapse amongst this group was 158 days (22.6 weeks) these findings strongly indicate that increasing negative appraisals of psychosis are associated with the experience of relapse. This pattern of results are suggestive that increasing self-blame (Self versus Illness) may precede the onset of relapse, whilst increasing appraisals of shame may occur later in the relapse trajectory either as a consequence of increasing self blame, or of relapse itself. Central to this

interpretation of these findings is the proposal that these negative appraisals of psychosis are contextually cued by the experience of signs and symptoms suggestive or confirmatory of a forthcoming relapse.

In line with this interpretation of the findings of the present study, Zoellner et al., (1996) found that individuals with Panic Disorder gave more credence to their catastrophic cognitions in the midst of panic than at other times. Furthermore, Zoellner and her colleagues (2001) also found evidence that memories for the emotional intensity of a traumatic event amongst individuals with Post-traumatic Stress Disorder (PTSD) were not fixed. Memories for emotional intensity of the traumatic event fluctuated over time, and fluctuated as PTSD symptoms changed. Amongst individuals with acute PTSD as symptoms decreased, reported emotional intensity decreased. However in her chronic PTSD group, Zoellner et al., (2001) found that as symptoms decreased, memory for emotional intensity increased. These investigators argued that this increasing emotional intensity associated with improvements in an imaginal exposure treatment was consistent with the activation of trauma memories and their subsequent emotional processing. Indeed Foa et al., (1995) found that imaginal exposure was associated with an increase in the vividness of the thoughts and feelings contained in trauma narratives. Given these findings, the results found in the present study could be interpreted as providing some evidence that (1) relapse is associated with a strengthening of negative beliefs and attributions concerning self-blame and shame and (2) that this may indicate a process of emotional re-experiencing of previously (and possibly traumatic) episodes of psychosis. Indeed the strengthening of such

negative self-related beliefs and attributions are likely to drive the development of relapse itself.

Bentall & Kaney (In submission) have proposed an attribution – self-representation cycle model to explain attributional lability in depression and paranoia. The model proposes that dysphoric mood is a consequence of negative self-representations, especially when such representations are in conflict with long-held standards of self-evaluation or dysfunctional attitudes (Alloy et al., 1999). The model assumes that a cognitive search process, which terminates when an appropriate explanatory construct is found, generates attributions for events. This search begins with current self-representations; if these include attributes that match the event (for example, when an individual begins to experience a relapse who already sees themselves as a failure) an internal attribution will be generated. In line with this, Flett et al., (1995) found that individuals with low self-esteem tend to generate internal attributions for failure experiences, and Bentall et al., (1999) found that depressed and paranoid participants take less time to generate internal attributions for negative events. A central assumption of Bentall's attribution – self-representation cycle model is that attributions are (1) unstable, (2) derived from self-representations, and (3) reinforce individuals self-representations. The findings in the present study are in line with this proposal. Individuals who are prone to relapse have more negative representations of themselves and in the context of relapse show increasing negative appraisals of self-blame and shame concerning psychosis. Furthermore, the experience of relapse was found to be associated with increased psychological co-morbidity.

Specifically, the present study found that relapse was associated with increased psychological morbidity across a number of domains including somatisation, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, phobic anxiety and psychoticism. The findings of this study point towards a relationship between relapse and negative appraisals of psychosis and the evolution of psychological morbidity. Indeed negative appraisals of psychosis may have a mediating role in the evolution of both relapse and psychological morbidity.

The study has a number of limitations. First, the relationship between negative appraisals of psychosis and the evolution of relapse requires further investigation. The study design did not allow for repeated measurements of negative appraisals of self and psychosis before, during and following relapse. Such a design would have allowed for a much more detailed view of the role of these factors in the evolution of relapse. Second, it was not possible to establish whether the psychological morbidity observed at 52-weeks was a feature of the relapse process itself, or whether, as in Birchwood and colleagues (2000) study it was part of a de novo psychological disorder such as Post Psychotic Depression. These limitations could be addressed through further prospective research employing detailed repeated measures of psychological factors associated with the predisposition to, evolution of, and reactions to relapse over the short, medium and longer term. The present study provides evidence of possible candidate psychological factors associated with the development of relapse that are worthy of further investigation. In addition, experimental research could be employed to examine the nature and

stability of attributional style and negative appraisals of psychosis. Such research could compare individuals who are at high risk of relapse with individuals who are at low risk. This combination of further prospective and experimental research may yield further insights into the nature of relapse and the evolution of psychological morbidity.

Chapter 9

Integrating theory and therapy on relapse: current status and future directions

9.1 Introduction

This thesis began with the proposal that understanding the personal meanings attached to the experience of psychosis is critical to the development and evolution of problem and disorder relevant, psychological approaches to the both conceptualisation and treatment of relapse and the control of illness experience in psychosis. Indeed the *DNA* of this thesis is contained in the conjecture that theory and therapy in the area of cognitive therapy for psychosis are mutually enhancing (Garety et al., 2001). Therapy provides a context for theoretical developments and the empirical investigation of cognitive models. In turn this process should clarify the appropriate targets of psychological treatment, enable the refinement of its techniques, and thereby enhance its efficacy.

9.2 Summary of Findings

Chapter 5 described a 12-month exploratory randomised-controlled trial comparing cognitive behavioural therapy and treatment as usual (CBT + TAU) with TAU alone in the prevention of relapse. CBT was delivered during the early signs of relapse and focused on (1) the development of an individualised case formulation of psychological factors associated with relapse acceleration, (2) the modification of negative beliefs concerning illness, and (3) the development and implementation of cognitive or behavioural coping strategies within and between sessions. This study found that receipt of CBT + TAU was associated with a significant reduction in relapse rate (10 / 66; 14.9%) in comparison to TAU alone (24 / 67; 35.8%). CBT + TAU was also associated with a significant reduction in admission rate

(8 / 66; 11.8%) compared to TAU alone (18 / 67; 26.9%). However, the study did not find that CBT + TAU was associated with reduced duration to relapse, or reduced severity of relapse itself. Chapter 6 described the clinical significance of reducing relapse rate associated with CBT + TAU. CBT + TAU was associated with increased remission rates (41 / 66; 62.1%) in comparison to TAU alone (26/ 67; 38.8%) at 12-months. In addition, receipt of CBT + TAU was associated with increased rates of clinically significant improvements in prosocial functioning (39 / 66; 59.1%) in comparison to TAU alone (25 / 67; 38.5%). Chapter 7 investigated the effect of CBT + TAU on reducing psychological distress, and negative appraisals of self and psychosis. That study did not find that receipt of CBT was associated with improvements in psychological distress, negative appraisals of psychosis, and negative appraisals of self.

This was an unexpected finding given that the CBT protocol explicitly focused on the identification and modification of negative appraisals of self and psychosis during the targeted CBT phase. The CBT targeted negative appraisals of self and psychosis in the specific context of early signs of relapse. It was therefore proposed that it may be possible that the beliefs targeted amongst those participants who received targeted CBT were specific to that context, and that any changes in those beliefs during that phase were not elaborated to corresponding or associated mental representations. If this was the case then future experimental research could investigate biases in cognitive processes amongst individuals who are at high risk of relapse versus those who are low risk of relapse, or amongst individuals during remission and

during early relapse. In particular experimental research could investigate cognitive processes involved in integrative and elaborative processing. Graf and Mandler (1984) have proposed that the integration of stimulus information is an automatic process that strengthens the internal structure of a stimulus representation, thus making that representation more accessible in the sense that activation of any part will serve to activate the whole. In consequence, stimuli corresponding to representations that are in a high state of integration will tend to 'pop out' of the stimulus array, and hence will tend to be selectively encoded. Therefore, according to Graf and Mandler's (1984) model of stimulus integration, individuals at high risk of relapse (e.g. those experiencing early signs) would, like patients with anxiety, show selective processing of threat-related stimuli and a biased implicit recall of threat-related information (e.g. relapse or hospital-related words). In contrast, Graf & Mandler propose that elaborative processing is a strategic process that serves to establish and strengthen associative connections between a mental representation and other existing representations in memory. A highly elaborated representation will be disproportionately easy to retrieve on intentional memory tasks, such as recall and recognition. If the treatment effects of targeted CBT were specific to the context of relapse, and therefore changes in negative appraisals of psychosis and self did not generalise, one would not expect individuals at high risk of relapse to show biased intentional memory for threat-related information in comparison to those at low-risk of relapse. Therefore, future experimental research could examine the nature of cognitive biases associated with increased risk of relapse in psychosis.

9.3 CBT for schizophrenia: context and refinement

Chapter 3 provided a review of treatment outcome trials of CBT for schizophrenia with a particular emphasis on the outcome results for relapse and psychological distress. The rationale for this focus was based on the findings of numerous investigators (e.g. Subotnik & Neuchterlein, 1988; Birchwood et al. 1989; Gaebel et al. 1993; Jolley et al. 1990; Jorgensen, 1998; Marder et al. 1991; Marder et al. 1994; Tarrier et al. 1991) that relapse tends to be preceded by a period of increased psychological distress characterised by increased fear, confusion, perplexity and depression. It was concluded that there was encouraging evidence that CBT was associated with maintenance of treatment gains at follow-up (e.g. Kuipers et al., 1997; Sensky et al., 2000), but that the evidence concerning the efficacy of CBT for prevention of relapse (Kuipers et al., 1997; Tarrier et al., 2000) and reduced psychological co-morbidity was lacking (Kuipers et al., 1997, Tarrier et al., 2001). How can the results of the present study be understood in context of these previous trials of CBT for schizophrenia?

The key to developing proposals which can contribute to shedding light on this question lie in the interface between theory and therapy. With regards to relapse the treatment protocol described in Chapter 4 proposed that what is critical during relapse is the interaction between the individuals' pre-existing beliefs concerning themselves, the world and future, the occurrence of psychosis as a critical incident, and the individuals' attempt to assimilate or accommodate their experience. Therefore the treatment protocol specified that the targeting of negative beliefs concerning self, and self in relation to illness

would result in the deceleration and the prevention of relapse. As described in Section 9.2 above there was no evidence from the treatment outcome data that CBT resulted in reduced negative appraisals of self and illness, or reduced psychological distress.

The evidence, on which targeting these negative beliefs were based, was drawn from the literature concerning cognitive factors in the development of psychological distress and co-morbidity. Iqbal et al., (2000) have proposed that, in line with Gilbert (1992) certain life situations are likely to be depressogenic, particularly if they encapsulate feelings of loss, humiliation and entrapment. In line with their proposal, psychosis is seen as a life event whose appraisal may involve these elements. Birchwood et al., (1993) and Iqbal et al., (2000) have provided strong evidence that secondary depression is related to negative beliefs concerning entrapment, shame and humiliation arising from illness experience.

The results of the present study do attest to the possibility that CBT could be refined to reduce relapse risk and improve psychological co-morbidity. In the present study CBT was targeted on the relapse process. The cognitive factors hypothesised to increase relapse risk described in Chapter 3, and the techniques described in Chapter 4 could be delivered in a different way. The targeting of these cognitive factors using the techniques specified could be provided in a more conventional format. In the future CBT treatments which delineate techniques focused on the transformation of beliefs and assumptions regarding self worth and appraisal of psychosis could result in improved

outcomes in relation to psychological co-morbidity and the reduction of medium to long-term relapse risk. The utilisation of a model of psychosis, which sees the psychosis itself as a critical incident and the individual's psychological response to the experience of psychosis as attempts to assimilate and accommodate their experience into pre-existing beliefs, may provide a framework to such an enterprise.

9.4 A Psychological Model of Relapse

Chapter 7 concluded that relapse could be understood as the outcome of an interaction between stable vulnerability factors and mediating factors which act to accelerate the process of relapse. Findings providing evidence for a cognitive vulnerability to relapse were described in Chapter 5. First, a logistic regression analysis revealed that negative appraisals of self and negative appraisals of entrapment in psychosis were significant predictors of relapse. Second, a Cox proportional hazards regression analysis found that increased negative appraisals of self were associated with reduced duration to relapse. Furthermore, in Chapter 7 it was observed that amongst relapsers, these appraisals showed remarkable stability over time.

In terms of mediating cognitive factors, there was evidence that relapse was associated with increasing negative appraisals of self-blame for psychosis and shame concerning psychosis. The timing of these changes in appraisal of psychosis suggested that increased self-blame might precede the advent of relapse, whereas increased appraisals of shame appeared to occur later in the relapse trajectory. These findings were interpreted as evidence for a role for

the cognitive factors in mediating the development of relapse.

Such an approach to the conceptualisation of relapse is illustrated in Figure 9.1 below. This model integrates existing perspectives developed through attribution theory (Abramson et al., 1978, 1989; Bentall & Kaney, In submission). Attribution theory proposes that dysphoric mood is a consequence of negative self-representations which predispose individuals to making internal, stable and global attributions for negative events. This attributional style results in increased hopelessness and helplessness. According to Alloy et al., (1999) this is especially the case when such negative self-representations are in conflict with long-held standards of self-evaluation or dysfunctional attitudes. Furthermore, this model assumes that a search for meaning (Birchwood, 1995) terminates when an appropriate explanatory construct is found, and generates attributions for events. This search begins with current self-representations; if these include attributes that match the event (for example, when an individual begins to experience a relapse who already sees themselves as a failure) an internal attribution will be generated.

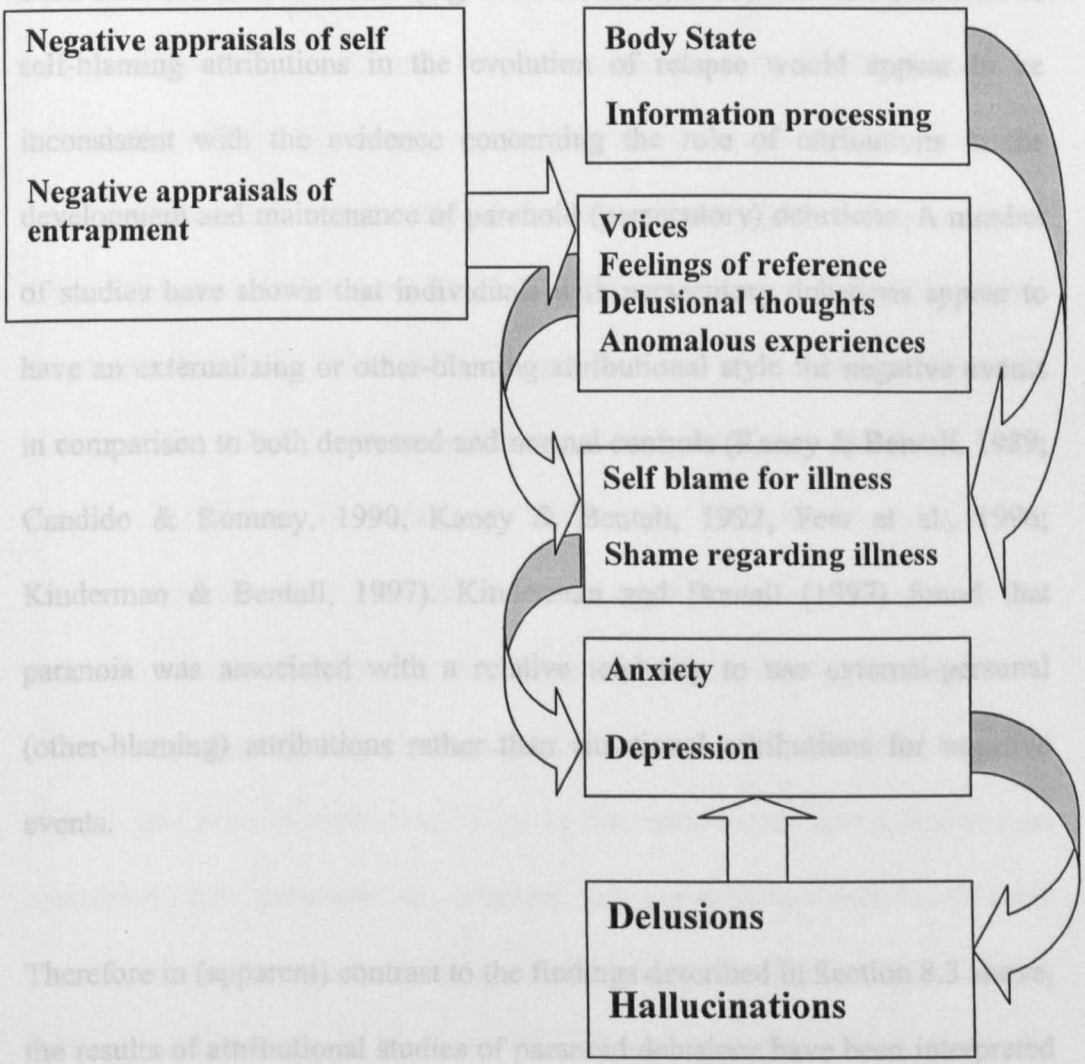
According to this model, negative appraisals of self and a perception of entrapment in psychosis confer a cognitive vulnerability to relapse. Therefore when a vulnerable individual, who sees themselves as a disappointment and failure, is confronted by internal or external stressors which are indicative of an impending relapse, that individual perceives their escape from psychosis as blocked. Faced with the inevitability of relapse, they attribute blame for relapse to themselves, resulting in increased demoralisation and shame. It is

proposed that such a dysphoric response results in the acceleration of relapse. Evidence for the role of dysphoria and increased psychological distress prior to relapse has already been reported by a number of investigators (e.g. Subotnik & Neuchterlein, 1988; Birchwood et al. 1989; Gaebel et al. 1993; Jolley et al. 1990; Jorgensen, 1998; Marder et al. 1991; Marder et al. 1994; Tarrier et al. 1991). These investigators have found that relapse tends to be preceded by a period of increased psychological distress characterised by increased fear, confusion, perplexity and depression. Indeed, the predictive validity of increased psychological distress to relapse has been shown to be improved by the inclusion of low-level psychotic symptoms such as delusional thoughts, ideas of reference, voices and anomalous experiences (e.g. Birchwood et al., 1989; Jorgensen, 1998; Tarrier et al., 1991). Indeed the occurrence of low-level psychotic symptoms in combination with subtle changes in attention (e.g. Neuchterlein & Dawson, 1984), perception (e.g. McGhie & Chapman, 1961) and body state (Tarrier & Turpin, 1992) are likely to represent internal stressors which trigger an attributional search for meaning.

This model is also in line with the evidence concerning the development of psychological comorbidity (Birchwood et al, 1993; Iqbal et al., 2000). Iqbal et al., (2000) have proposed that, in line with Gilbert (1992) certain life situations are likely to be depressogenic, particularly if they encapsulate feelings of loss, humiliation and entrapment. In line with their proposal, psychosis is seen as a life event whose appraisal may involve these elements. Birchwood et al., (1993) and Iqbal et al., (2000) provided strong evidence that

post psychotic depression is related to negative beliefs concerning entrapment, shame and humiliation arising from illness experience. In line with their findings this study found that relapse was associated with the increasing negative appraisals of psychosis, and that relapse itself was associated with increased psychological co-morbidity at 52-weeks.

Figure 9.1 An Attributional Model of Relapse in Psychosis



9.5 Attributional Theory and Persecutory Delusions

The study outlined in Chapter 7 found that negative appraisals of self-blame for psychosis and shame associated with psychosis were associated with

relapse. These findings were interpreted as evidence that these cognitive factors might mediate the development of relapse itself through the evolution of self-blaming attributions, which could drive the development of dysphoria and withdrawal during the early stages of relapse. It was argued that these findings are consistent with the findings derived from tests of attribution theory (Abramson et al., 1978; Alloy et al., 1989) and indeed consistent with the findings derived from research on the instability of cognitive factors in other disorders such as PTSD (e.g. Zoellner et al., 2001). However, the role of self-blaming attributions in the evolution of relapse would appear to be inconsistent with the evidence concerning the role of attributions in the development and maintenance of paranoid (persecutory) delusions. A number of studies have shown that individuals with persecutory delusions appear to have an externalizing or other-blaming attributional style for negative events in comparison to both depressed and normal controls (Kaney & Bentall, 1989; Candido & Romney, 1990; Kaney & Bentall, 1992; Fear et al., 1996; Kinderman & Bentall, 1997). Kinderman and Bentall (1997) found that paranoia was associated with a relative tendency to use external-personal (other-blaming) attributions rather than situational attributions for negative events.

Therefore in (apparent) contrast to the findings described in Section 8.3 above, the results of attributional studies of paranoid delusions have been interpreted as evidence that the external attributional biases serve a function of maintaining self-esteem. Bentall and colleagues (1994) have proposed that individuals with persecutory beliefs have implicit negative self-schemas and

externalizing attributions triggered following activation of these schemas function to reduce discrepancies between the self-concept and ideals at the expense of holding beliefs about negative opinions that others hold about the self. However, Freeman et al., (1998) have criticized this view of persecutory delusions. They found that self-esteem was not spared in individuals with paranoid delusions compared to individuals with schizophrenia not suffering from paranoid delusions. Freeman et al. used Robson's (1989) measure of self-esteem, which includes items concerning beliefs about others' negative opinions about the self, and Kinderman & Bentall (1996) found that individuals with persecutory paranoia had few discrepancies between their actual and ideal selves, but believed that others held negative opinions about them. Lyon et al. (1994) gave deluded, depressed and normal participants the Pragmatic Inference Test (PIT), a non-obvious or implicit attributional measure. On this measure individuals with persecutory paranoia made excessively internal (self-blaming) attributions for negative events and external attributions for positive events, in contrast to the same participants showing an external (other blaming) attributional bias for negative events on an explicit measure of attributional style. Krstev et al., (1999) investigated implicit and explicit attributional style in first episode psychosis. Rather than measuring the presence or absence of persecutory delusions, these investigators examined the severity of suspiciousness. Krstev et als' (1999) findings were broadly in line with Bentall and coworkers' findings for the relationship between explicit attributional style, suspiciousness and depression, with higher suspiciousness being associated with a more externalizing attributional style for negative events and higher depression

being associated with a more internalizing attributional style for negative events. Krstev et al did not replicate the findings of Lyon et al., (1994) for implicit attributional style. Krstev et als.' sample was younger (mean age = 21.6 years) than Lyon et als.' sample (mean age = 35.6 years). In addition, the attributional biases found in both the implicit and explicit measures were less pronounced than those observed by Lyon et al., (1994). Krstev et al., concluded that it could be the case that in older individuals with more chronic illness the threat to self might be more pronounced resulting in an individual's need to maintain a positive explicit self concept or that an externalizing attributional style is only present in a subgroup of young persons with a first episode of psychosis. Therefore the apparent discrepancies between studies concerning attributional style, self-esteem and persecutory delusions may be due to differences in measurement of self-esteem (e.g. Freeman et al., 1998), or differences between participant samples (e.g. Krstev et al., 1999).

It is also possible that external-personal attributional biases associated with persecutory delusions may be related to the ability of individuals to represent other peoples' perceptions of events (theory of mind). External-personal attributions are associated with poor theory of mind skill in normal participants (Kinderman et al., 1998). The theory of mind deficit has been reported in paranoid participants (Corcoran, et al., 1995; Frith & Corcoran, 1996). Whilst there is evidence that the theory of mind deficit is associated with having psychosis, there is no evidence that these deficits are specific to paranoid symptoms (Garety & Freeman, 1999). According to Bentall et al., (1998) the presence of the theory of mind deficit results in individuals with

paranoid delusions being prone to making external-personal (as opposed to external-situational) attributions. Gilbert et al., (1988) found that under pressure, normal participants make fewer situational attributions and more external-personal attributions compared to normal conditions. Therefore under stress, individuals with persecutory paranoia will make more external-personal attributions which will in turn less readily prime negative self-representations, but should reinforce the paranoid world-view (Bentall et al., 1998). Such a proposal would be consistent with the findings of Krstev and colleagues (1999) as over time repeated regeneration of external-personal attributions would result in strengthening of a paranoid world-view and under stress the accessibility of negative beliefs about others. In addition, Bentall et als.' (1998) theory would not be incompatible with the model of relapse described in Section 8.3 above. It is possible that cognitive processes could evolve in parallel where the experience of relapse results in increasingly negative self-representations of self in relation to psychosis, and given the experience of such a stressful event, the generation of negative other-representations and external-personal attributions resulting in the development of paranoia. This would account for the co-incidence of persecutory paranoid beliefs and low self esteem (e.g. Freeman et al., 1998).

Future research could investigate (de)synchrony in attributional processes and self-representations amongst individuals with psychosis, in particular qualitative research could examine whether self-blaming attributions for psychosis co-exist with other-blaming attributions for negative events in general. Experimental or longitudinal research could examine whether

negative beliefs about self in relation to psychosis affect or mediate the evolution of external-personal attributions. For example, Bentall & Kaney (In submission) examined attributional lability in depressed, paranoid and "normal" participants. Attributional measures were administered before and after a contrived failure experience. Prior to task administration, the performance of depressed and paranoid participants was consistent with that predicted by previous research prior to the failure experience. Depressed and paranoid participants made excessively stable and global attributions in comparison to normal participants. However, paranoid patients made excessively external attributions for negative events and depressed patients made excessively internal attributions. In comparison to "normals", both paranoid and depressed participants' scores for internality increased, even after controlling for self-reported depression. There were no changes in stability and globality after test administration. Following the task participants were asked to estimate their degree of control over the outcome of the task. Paranoid participants rating of their control were significantly higher than the "normal" and depressed participants were. Therefore, this study demonstrated that (1) attributional style is unstable and (2) paranoid participants with an externalising attributional style, in comparison to depressed and "normal" participants, failure experiences increase their ratings of internality (or self-blame) for an event that they assume some measure of control over. In relation to relapse, one could hypothesise that individuals at high-risk of relapse, in comparison to individuals at low-risk, would show greater shifts towards self-blame (or internality) in their attributional style following a contrived failure experience.

9.6 Long term outcome and prognosis in schizophrenia

Chapter 1 reviewed the development of the clinical concept of schizophrenia. The evolution of diagnostic systems since Bleuler's (1911) description and classification of schizophrenia have improved in the reliability of diagnosis (Tsuang et al., 2000). However, questions still remain regarding the validity of the diagnosis. For a diagnostic category to have validity it provides information on the aetiology and prognosis of the disorder. As was pointed out, diagnostic systems such as DSM and ICD have become divorced from conceptualisations of the aetiology of schizophrenia. At the same time they emphasise the presence of positive psychotic symptoms and impact on day-to-day functioning. However, Bell and colleagues (1998) showed that the duration of illness and the absence of affective symptoms correctly classified 97% of individuals with first episode psychosis as having DSM-III-R schizophrenia, and also correctly identified 97% of those who did not have schizophrenia. Inclusion of DSM-III-R's psychosis criteria did not improve prediction. Serretti et al., (1996) found that the psychopathology of participants with schizophrenia and bipolar disorder overlapped on the disorganisation factor. Crow (1990, 1991, 1998b) proposed that schizophrenia, schizoaffective disorder, and affective illnesses exist along the same continuum, rejecting the concept of distinct disease entities. Indeed a variety of evidence demonstrates that psychosis is not specific to schizophrenia, that Schneiderian symptoms occur in other disorders (Peralta & Cuesta, 1998), and indeed measures of psychosis do not differentiate schizophrenia from other disorders. Furthermore, Chapter 1 found that, notwithstanding the methodological shortcomings and variations in diagnostic criteria employed,

the outcome of schizophrenia is heterogeneous (e.g. Carpenter and Strauss, 1991; Thara et al., 1994; Eaton et al., 1995; Harrison et al., 1996; Mason et al., 1996). Poor outcome is however associated with longer duration of untreated illness, poor pre-morbid adjustment, and higher levels of social isolation. Indeed longer duration of untreated illness is associated with poorer outcome and increased risk of relapse for pharmacological treatments (e.g. Crow et al., 1986; Robinson et al., 1999). This means that the diagnosis of schizophrenia in itself is not predictive of long-term outcome. However, some investigators have proposed that a disorder of insidious onset, in individuals with poor pre-morbid social networks and poor pre-morbid social adjustment is indicative of biological vulnerability and an underlying neurodevelopmental disorder preceding the evolution of psychosis (Tsuang et al., 1999). However only one study (Leiberman et al., 1989) has found evidence that abnormal brain pathology is associated with poor long-term outcome. Indeed it may be that neurodevelopmental abnormalities result from early social adversity. For instance, recent research has shown that repeated practice of complex memory tasks results in change in brain size. Maguire et al., (2000) studied brain scans of London taxi drivers, who have to learn enormous amounts of information, and found enlargement of certain brain structures. Indeed in a review of the literature concerning the biological basis of schizophrenia, Chua & McKenna (1995) concluded that 'although the concept of schizophrenia has been in existence for nearly a century....there has been no identification of any causal pathology'. Furthermore, Bremner (1995) has shown that traumatic life experiences, which result in Post traumatic stress disorder, are associated with structural changes in the hippocampus.

Therefore poor pre-morbid social isolation and long duration of untreated psychosis are likely to be experiences, which are psychologically toxic. Evidence of psychological vulnerability to the development of psychosis has been described by Van Os (2000) who found a role for negative schemas in the development of psychosis. In a large epidemiological study over 7000 people were screened for symptoms and psychiatric status and followed up for three years. Those who subsequently developed psychosis were found to be more likely to have low self-esteem and depressive schemata. In addition, Birchwood et al., (2000) found that childhood experiences of social adversity lead to the development of negative schemata involving social humiliation and subordination, which in turn fuel voices and paranoia. Indeed in terms of the prediction of developing psychosis Albers et al. (1998) found that subjective experience of basic cognitive symptoms was predictive of developing psychosis. They examined individuals who showed definite evidence of the basic symptoms (as described by Chapman, 1966) at an index examination but did not show any evidence of psychosis, in order to determine whether the presence and type of basic symptoms can predict the development of schizophrenia. Of the 78 patients who showed definite evidence of basic symptoms, 56 (72%) underwent transition to psychosis during the intervening 8-year follow-up period. None of the 18 patients without evidence of basic symptoms at index examination were found to have developed psychosis in the intervening period. The analysis was able to predict the presence or absence of transition to schizophrenia accurately in 77% of individuals.

These findings suggest that an interaction between the appearance of subtle changes in information processing, perhaps reflecting underlying neurodevelopmental processes, and the experience of social adversity, poor parental bonding, social isolation and a long period of illness experience without help or assistance produce a toxic biological, psychological and social outcome for such individuals. Indeed, as described in Chapter 2 living in adverse social environments is a robust predictor of outcome in terms of relapse and social functioning (Kavanagh, 1992) and that adverse environments arise from relatives' beliefs and attributions arising from their family member's behaviour (Brewin et al., 1991; Barrowclough et al., 1994). Indeed, the experience of psychosis is traumatic (McGorry et al., 1991) and the lifetime prevalence of trauma amongst individuals with psychosis is extremely high (Meuser et al., 1998).

Given the possible role of psychological factors early in the experience of psychosis, particularly around transition to psychosis, psychological models of relapse may assist the development of psychological models of transition to psychosis itself. Such an enterprise could hold out the possibility that psychological therapies may be designed to assist individuals who are at high-risk of developing psychosis. This will be discussed below.

9.7 Transition to Psychosis

Gumley et al., (1999) described a model of relapse, which was based on the Interacting Cognitive Subsystems (ICS) framework developed by Teasdale and Barnard (1993). A simplified version of this model was described in

Chapters 3 and 4. However, Gumley et als.' (1999) adoption of the ICS conceptualisation was based on the limitations of single level psychological approaches. For example, schema theory developed by Beck and colleagues (e.g. Beck et al., 1979) has been a powerful model, which has lead to the development of a range of treatments for a range of psychological disorders. Indeed, as described above schema theory offers a potentially powerful means of understanding the nature and processes of outcome in psychosis. Schema theory emphasised the cognitive content of beliefs, for example "I am bad" but does not provide a detailed analysis of how cognitive processes or levels of cognition such as attention and memory lead to the evolution and maintenance of emotional disorders (for example Wells, 2000). For this reason ICS was adopted as a guiding conceptualisation. In this model qualitatively distinct types of information are distinguished: sensory information codes, which includes basic visual, acoustic and proprioceptive stimuli, intermediate information codes representing recurring patterns of visual, acoustic and proprioceptive information, a propositional information code representing specific meanings, and a holistic implicational code representing generic meanings. In ICS implicational meaning is responsible for the generation of emotion. In terms of relapse, Gumley and colleagues proposed that subtle and recurring patterns of internal and external stimuli, which were reminiscent of previous episodes of psychosis, activated implicational meaning. The activation of implicational meaning triggered a range of emotional and cognitive changes observed during early relapse and therefore implicational meaning was proposed to be responsible for the activation and acceleration of relapse. Clinically the model enabled the binding of subjective experience

during early relapse and the role of personal meaning in the development of relapse. However, from an empirical viewpoint, the model has a number of limitations outlined by Wells (2000). First, it is unclear in ICS how automatic processes such as attention interact with self-knowledge (propositional and implicational meaning). ICS does not provide an account of attentional processes and their relationship to psychological disorder. Second, ICS specifies that implicational meaning governs individuals' emotional reactions to internal or external events. However, implicational meaning is non-verbal and therefore difficult to measure or demonstrate empirically. Third, given that implicational meaning is apparent by the presence of adverse emotional reactions such as depression, implicational meaning can therefore only be identified because it elicits an emotional response. Thus the theory produces circularity in its predictions.

Wells & Matthews (1994) and Wells (2000) provide a metacognitive account of the development of psychological distress. Metacognition refers to any knowledge or cognitive process that is involved in the appraisal, monitoring or control of cognition. Metacognitive knowledge is information that an individual has about their own cognition and task factors or learning that affect it. Metacognitive regulation refers to a range of executive functions, such as the allocation of attention, monitoring, checking, planning and detection of errors in performance. According to Wells and Matthews (1994) there are three types of intrusion into cognitive awareness; these are external stimulus information, cognitive state information and body state information. Clearly given the evidence from the subjective experience literature reviewed in

Chapter 3, intrusions across these domains are likely to be relevant to the relapse process. Indeed, Hemsley (1993) suggests that the 'intrusion of unexpected/ unintended material from long-term memory' is a cognitive abnormality associated with schizophrenia.

There is growing evidence, some of which was discussed in Chapter 3, that metacognitive knowledge and regulation are involved in the development and maintenance of symptoms of psychosis. In terms of metacognitive knowledge, increased negative beliefs concerning the controllability of thoughts, the acceptability of thoughts, and the negative consequences of lack of control of thoughts were associated individuals diagnosed with schizophrenia who experienced auditory hallucinations compared to controls with schizophrenia who did not experience auditory hallucinations (Morrison & Baker, 2000). In addition, positive beliefs concerning unusual perceptual experiences were the best predictor of predisposition to auditory and visual hallucinations occurring in normal participants (Morrison, Wells, & Nothard, 2000). In addition, negative beliefs concerning the controllability of thoughts and responsibility for intrusive thoughts were found to be the best predictor of hallucinatory predisposition in normal subjects (Gray & Gumley, in submission). Freeman & Garety (1999) found that the majority of a sample of individuals with persecutory delusions experienced meta-worry concerning the control of delusion-relevant thoughts. In terms of metacognitive regulation attentional biases to threat related information have been found by a number of investigators (e.g. Bentall & Kaney, 1989) investigating persecutory delusions. In addition, paranoia has been found to be associated with increased self-

consciousness (Smari, Stefansson, & Thorgilsson, 1994), as have auditory hallucinations (Morrison & Haddock, 1997).

A measure of metacognition was not included in the present study. Future research into relapse and transition to psychosis could benefit from the inclusion of measures of metacognitive knowledge and regulation. This would be especially relevant given the evidence for the disruption of information processing during the early stages of psychosis and the intrusion of unusual cognitive, perceptual and body-state experiences during this phase.

9.8 Future research

There are a number of implications for future research and therapy concerning relapse in psychosis. First, the relationship between relative's attributions for their family member's behaviour, and the individual's own attributions are a potentially important focus of investigation. One would predict that attributions associated with increased hostility and blame will be associated with individual attributions of self-blame, shame, and humiliation associated with illness. On the other hand, attributions responsible for the development of emotional overinvolvement will be associated with individual attributions of helplessness and powerlessness to control illness. Whilst both of these communicative styles are associated with increased risk of relapse, it may be that increased relapse risk is via the individual's own beliefs developed from their familial experience. The findings of the present study concerning the relationship between appraisal of illness and relapse, and appraisal of illness and withdrawal are supportive of this line of investigation.

Future studies of psychological interventions could pay special attention to the inclusion of measurements of cognitive processes associated with the evolution of illness chronicity and relapse. Indeed potential candidate measures would include assessments of self-concept, secondary appraisal of illness, attributional style, and metacognitive beliefs and processes. This study included a simple measure of self-esteem, but future studies could employ more sophisticated measures, which provide an assessment of multiple dimensions of self-concept and self-discrepancies. This study did not include any metacognitive measures. There is a need to examine in more detail the interaction of schematic beliefs concerning self and self-related beliefs concerning appraisal of thinking, and the regulation and control of cognitive processes.

In addition there is a need to develop experimental investigations into the nature of cognitive processes such as attention, memory, and attributional style in the development of increased risk of relapse. The model outline in Section 9.4 above may provide a guide to such endeavours. Furthermore, given that there is growing evidence that psychological vulnerability precedes the development of psychosis itself, research involving individuals at high-risk could incorporate these measures into their design. The inclusion of measures of schematic beliefs and appraisals of cognitive-perceptual experience would provide a detailed view of the emergence of psychosis and the development of the social disabilities, which predate the first episode.

Finally, the cognitive behavioural intervention examined during this study could be improved in terms of its format and mode of delivery. The integration of cognitive behavioural techniques targeted on the transformation of meanings related to self and illness offer a potentially useful approach to the treatment of psychological co-morbidity, the facilitation of remission, the improvement of social functioning, and the reduction of medium-term and perhaps long-term relapse risk. In terms of mode of delivery, such strategies could be easily integrated into existing cognitive behavioural interventions delivered to individuals recovering from an acute episode of psychosis or who continue to experience symptoms which are not responsive to pharmacological treatment.

As such the mutual relationship between theory and therapy offers a scientifically viable approach to the evolution of models of psychosis which specify in detail the cognitive behavioural factors responsible for the development of illness chronicity and social disability. Thereby such an approach to treatment offers real hope and optimism to individuals and their families who have long experienced psychosis as an uncontrollable and traumatic event, which results in social marginalisation and stigmatisation.

Papers arising from the present study

(published, in press and submitted)

Published

Gumley, A.I., White, C.A., & Power, K.G. (1999) An Interacting Cognitive Subsystems model of relapse and the course of psychosis. Clinical Psychology and Psychotherapy, 6, 261-178.

Gumley, A.I. & Power, K.G. (2000) Is targeting cognitive therapy during early relapse in psychosis feasible? Behavioural and Cognitive Therapy, 28, 161-174.

Tait, A., McNay, L., Gumley, A.I., & O'Grady, M. (2002) The development and implementation of an idiosyncratic early signs monitoring system. Journal of Mental Health, 11, 2, 141-153.

Gumley, A.I. (2002) Implicational meaning versus meaning implied by experience: A rely to Clarke (2002) Introducing further developments towards an ICS formulation of psychosis. Clinical Psychology and Psychotherapy, 9, 51-54.

In Press

Gumley, A.I., O'Grady, M., McNay, L., Reilly, J. & Power, K.G. (In press) A randomised-controlled trial of targeting cognitive behavioural therapy on relapse in schizophrenia: relapse, remission and social functioning at 12-months. Psychological Medicine

References

Abramson, L.Y., Seligman, M.E.P., & Teasdale, J.D. (1978) Learned helplessness in humans: Critique and reformulation. Journal of Abnormal Psychology, 78, 40-74.

Abramson, L.Y., Metalsky, G.I. & Alloy, L.B. (1989) Hopelessness depression: A theory based subtype of depression. Psychological Review, 96, 358-372.

Achte, K.A. (1967) On prognosis and rehabilitation in schizophrenic and paranoid psychoses: A comparative follow-up study of two series of patients first admitted to hospital in 1950 and 1960 respectively. Acta Psychiatrica Scandinavica, 43 (suppl. 43): 5-125.

Achte, K.A. & Apo, M. (1967) Schizophrenic patients in 1950-52 and 1957-59: A comparative study. Psychiatric Quarterly, 41, 422-441.

Alarcon, R. de and Carney, M.W.P. (1969) Severe depressive mood changes following schizophrenia relieving intramuscular fluphenazine injections. British Medical Journal, 111, 564-567.

Albers, M., Shultze-Lutter, F., Steinmeyer, E.M. and Klosterkotter, J. (1998) Can self-experienced neuropsychological deficits indicate propensity to schizophrenic psychosis? Results of an 8-year prospective follow-up study. International Clinical Psychopharmacology, 13 (suppl 1), 75-80.

Alloy, L.B., Abramson, L.Y., Whitehouse, W.G., Hogan, M.E., Tashman, N.A., Steinberg, D.L., Rose, D.T., & Donovan, P. (1999) Depressogenic cognitive styles: predictive validity, information processing, and personality characteristics, and developmental origins. Behaviour research and Therapy, 37, 503-531.

American Psychiatric Association (1952) The Diagnostic and Statistical Manual of Mental Disorders. Washington DC, American Psychiatric Association.

American Psychiatric Association (1968) The Diagnostic and Statistical Manual of Mental Disorders, Second Edition. Washington DC, American Psychiatric Association.

American Psychiatric Association (1980) The Diagnostic and Statistical Manual of Mental Disorders, Third Edition. Washington DC, American Psychiatric Association.

American Psychiatric Association (1987) The Diagnostic and Statistical Manual of Mental Disorders, Third Edition- Revised. Washington DC, American Psychiatric Association.

American Psychiatric Association (1994) The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington DC, American Psychiatric Association.

Andreasen, N.C. (1984) The Scale for assessment of positive symptoms (SAPS). Iowa City, Iowa: The University of Iowa.

Arnold, J. (1988) Do self-ideal discrepancies and global self esteem amount to the same thing? An empirical investigation. British Journal of Guidance and Counselling, 16, 190-202.

Atkins M., Burgess A., Bottomly C. & Riccio M. (1997) Chlorpromazine equivalents: a consensus opinion for both clinical and research applications. Psychiatric Bulletin, 21, 224-226

Baker, C.A. & Morrison, A.P. (1998) Cognitive processes in auditory hallucinations: attributional biases and metacognition. Psychological Medicine, 28, 1199-1208.

Baldesarrini, R.J. & Davis, J. (1980) What is the best maintenance dose of neuroleptics in schizophrenia? Psychiatry Research, 3, 115-122.

Baldesarrini, R.J., Cohen, B.M. and Teicher, M.H. (1988) Significance of neuroleptic dose and plasma level in the pharmacological treatment of psychoses. Archives of General Psychiatry, 45, 79-91

Barbui, C., Saraceno, B., Liberati, A. & Garattini, S. (1996) Low-dose neuroleptic therapy and relapse in schizophrenia: meta-analysis of randomised controlled trials. European Psychiatry, 11, 306-313.

Barnard, P. (1985) Interacting Cognitive Subsystems: A psycholinguistic approach to short term memory. In Ellis, A. (Ed) Progress in the psychology of language, Vol 2, (pp 197-258). Lawrence Erlbaum Associates Ltd.

Barrett, K., McCullen, W.C. and Pocock, P.V. (1986) Brain indicators of altered attention and information processing in schizophrenia. British Journal of Psychiatry. 148, 414-420

Barrowclough, C. & Tarrier, N. (1990) Social functioning in schizophrenic patients. Social Psychiatry and Psychiatric Epidemiology, **25**, 125-129.

Barrowclough, C. Johnston, M. Tarrier, N. (1994) Attributions, expressed emotion and patient relapse: an attributional model of relatives' response to schizophrenic illness. Behaviour Therapy, 25, 67-88.

Barrowclough, C., Tarrier, N. & Johnston (1996) Distress, expressed emotion, and attributions in relative of schizophrenia patients. Schizophrenia Bulletin, 22, 4, 691-702.

Beauvois, J. & Joule, R. (1996) A Radical Dissonance Theory. Taylor and Francis.

Beck, A.T. (1978) Beck Depression Inventory. New York: Harcourt Brace Jananovich.

Beck, A.T., Rush, A.J., Shaw, B.F. & Emery, G. (1979) Cognitive therapy of depression. Chichester: Wiley.

Beck, M.N (1968) Twenty five and thirty five year follow-up of first admissions to mental hospital. Canadian Psychiatric Association Journal, 13, 219-229.

Beiser, M., Johnathon, A.E., Fleming, M.B., Iacono, W.G. & Lin, T. (1988) Refining the diagnosis of schizophreniform disorder. American Journal of Psychiatry, 145, 695-700.

Beiser, M., Iacono, W.G., & Erikson, D. (1989) Temporal stability in major mental disorders. In: Robins, L.N. & Barrett, J.E. (eds) The validity of psychiatric diagnosis. New York, Raven Press, 77-98.

Bell, R.C., Dudgeon, P., McGorry, P.D. & Jackson, H.J. (1998) The dimensionality of the schizophrenia concepts in first episode psychosis. Acta Psychiatrica Scandinavica, 97, 334-342.

Bentall, R.P. & Kaney, S. (1989) Content specific processing and persecutory delusions: an investigation using the emotional stroop test. British Journal of Medical Psychology, 62, 355-364.

Bentall, R.P. (1990) The illusion of reality: a review and integration of psychological research on hallucinations. Psychological Bulletin, 107, 82-95.

Bentall, R.P., Kinderman, P., & Kaney, S. (1994) The self, attributional processes and abnormal beliefs: Towards a model of persecutory delusions. Behaviour Research and Therapy, 32, 331-341.

Bentall, R.P., Kaney, S., & Bowen-Jones, K. (1995) Persecutory delusions and recall of threat-related, depression-related and neutral words. Cognitive Therapy and Research, 19, 331-343.

Bentall, R.P. (1996) From cognitive studies of psychosis to cognitive-behaviour therapy for psychotic symptoms. In Haddock, G. & Slade, P.D. Cognitive-Behavioural Interventions with Psychotic Disorders. Routledge.

Bentall, R.P. & Kinderman, P. (1998) Psychological processes and delusional beliefs: the implications for the treatment of paranoid states. In Wykes, T. and Tarrier, N. (Eds) Outcome and Innovation in the psychological treatment of schizophrenia. Chichester: John Wiley & Sons.

Bentall, R.P., Kinderman, P., & Bowen-Jones, K. (1999) Response latencies for the causal attributions of depressed, paranoid, and normal individuals: Availability of self representations. Cognitive Neuropsychiatry, 4, 107-118.

Bentall R.P., & Kaney, S. (in submission to Behaviour Research and Therapy) Attributional lability in depression and paranoia: Psychopathology and the attribution – self-representation cycle.

Biehl, H., Maurer, K., Schubart, C., Krumm, B. & Jung, E. (1986) Prediction of outcome and utilisation of medical services in a prospective study of first onset schizophrenics: Results of a prospective 5-year follow up study. European Archives of Psychiatry and Neurological Sciences, 236, 139-147.

Birchwood, M., Smith, J., Macmillan, F., Hogg, B., Prasad, R., Harvey, C., & Bering, S. (1989) Predicting relapse in Schizophrenia: The development and implementation of an early signs monitoring system using patients and families as observers. Psychological Medicine, 19, 649-656.

Birchwood, M., Smith, J., Cochrane, R., Wetton, C., & Copestake, S. (1990) The Social Functioning Scale: The development and validation of a new scale of social adjustment for use in family intervention programmes with schizophrenic patients. British Journal of Psychiatry, 157, 853-859.

Birchwood, M., Mason, R., & Macmillan, F. (1993) Depression, demoralisation and control over psychotic illness. Psychological Medicine, 23, 387-395.

Birchwood, M., Smith, J., Drury, V. et al., (1994) A self-report insight scale for psychosis: reliability, validity, and sensitivity to change. Acta Psychiatrica Scandinavica, 89, 62-67.

Birchwood, M. (1995) Early intervention in psychotic relapse: cognitive approaches to detection and management. Behaviour Change, 12, 2-19.

Birchwood, M., Iqbal, Z., Chadwick, P. & Trower, P. (2000) Cognitive approach to depression and suicidal thinking in psychosis 1. Ontogeny of post-psychotic depression. British Journal of Psychiatry, 177, 516-522.

Birchwood, M., Meaden, A., Trower, P., Gilbert, P. & Plaistow, J. (2000) The power and omnipotence of voices: Subordination and entrapment by voices and significant others. Psychological Medicine, 30, 337-344.

Bland, H.C., Parker, J.H. & Orn, H. (1976) Prognosis in schizophrenia: A ten-year follow-up of first admissions. Archives of General Psychiatry, 33, 949-954.

Bland, H.C. & Orn, H. (1978) 14-year outcome in early schizophrenia. Acta Psychiatrica Scandinavica, 58, 327-338.

Bland, H.C., Parker, J.H. & Orn, H. (1978) Prognosis in schizophrenia: Prognostic predictors and outcome. Archives of General Psychiatry, 35, 72-77.

Bleuler, E. (1911) Dementia Praecox ader gruppe der schizophrenien. In: Aschaffenburg, G. (Ed) Handbuch der psychiatrie. IV, 2. Leipzig: Deuticke, pp. 1-420.

Bleuler, E. (1950) Dementia Praecox. International Universities Press: New York.

Blueler, M. (1978) The Schizophrenic Disorders: Long term patient and family studies. New Haven: Yale University Press

Boker, W., Brenner, H.D., Gerstner, G., Keller, F., Muller, J. and Spichtig, L. (1984) Self-healing strategies among schizophrenics: attempts at compensation for basic disturbances. Acta Psychiatrica Scandinavica, 69, 373-378.

Bollini, P., Pampallona, S., Orza, M.J., Adams, M.E., & Chalmers, T.C. (1994) Anti -psychotic drugs: is more worse? A meta-analysis of published randomised controlled trials. Psychological Medicine, 24, 307-316.

Bowers, M.B. (1968) Pathogenesis of acute schizophrenic psychosis: an experimental approach. Archives of General Psychiatry. 19, 348-355.

Bremner, J.D. (1995) MRI-based measurement of hippocampal volume in patients with combat-related post-traumatic stress disorder. American Journal of Psychiatry, 152, 973-981.

Brenner, H.D. and Boker, W. (1989) Schizophrenia as a systems disorder, the relevance for mediating processes for theory and therapy. British Journal of Psychiatry, 155 (symposium suppl. 5)

Brewin, C.R. (1989) Cognitive change processes in psychotherapy. Psychological Review, 96, 379-394.

Brewin, C.R., MacCarthy, B., Duda, K., & Vaughn, C.E. (1991) Attribution and expressed emotion in the relatives of patients with schizophrenia. Journal of Abnormal Psychology, 100, 546- 554.

Brown, G.W., Birley, J.L.T. & Wing, J.K. (1972) Influence of family life on the course of schizophrenic disorders: a replication. British Journal of Psychiatry, 121, 241-258.

Butzlaff, R.L. & Hooley, J.M. (1997) Expressed emotion and psychiatric relapse: a meta-analysis. Archives of General Psychiatry, 55, 547-552.

Buchkremer, G., Klinberg, S., Holle, R., Schulze-Monking, H. & Hornung, P. (1997) Pychoeducational psychotherapy for schizophrenic patients and their key relatives or care-givers: Results of a 2-year follow-up. Acta Psychiatrica Scandinavica, 96, 483-491.

Candido, C.L. & Romney, D.M. (1990) Attributional style in paranoid versus depressed patients. British Journal of Medical Psychology, 63, 355-363.

Carpenter, W. & Strauss, J.S. (1979) Diagnostic issues in Schizophrenia. In L. Bellack (Ed) Disorders of the schizophrenic syndrome (pp. 291-319). New York: Basic Books.

Carpenter, W. & Hienrichs, D.W. (1983) Early intervention, time-limited targeted pharmacotherapy of Schizophrenia. Schizophrenia Bulletin, 9 (4), 533-542.

Carpenter W.T., Hanlon T.E., Heinrichs D.W., Summerfelt A.T., Kirkpatrick B., Levine J., & Buchanan R.W. (1990) Continuous versus targeted medication in schizophrenic outpatients: Outcome results. American Journal of Psychiatry, 147, 1138 – 1148

Carpenter, W. & Strauss, J. (1991) The prediction of outcome in schizophrenia. V: 11 year follow-up of the IPSS cohort. Journal of Nervous and Mental Disease, 179, 517-525.

Chadwick, P., & Birchwood, M. (1994) The omnipotence of voices: A cognitive approach to auditory hallucinations. British Journal of Psychiatry, 164, 190-201.

Chapman, J. and McGhie, A. (1963) An approach to the psychotherapy of cognitive dysfunction in schizophrenia. British Journal of Medical Psychology, 36, 253-260

Chapman, J. (1966) The early symptoms of schizophrenia. British Journal of Psychiatry, 112, 225-251

Chapman, J. (1967) Visual imagery and motor phenomena in acute schizophrenia. British Journal of Psychiatry, 113, 771-778.

Cheadle, A.J., Freeman, H.L., Korer. J. (1978) Chronic Schizophrenic Patients in the Community. British Journal of Psychiatry, 132, 221-227

Chua, S.E. & McKenna, P.J. (1995) Schizophrenia - a brain disease? A critical review of structural and functional cerebral abnormality in the disorder. British Journal of Psychiatry, 166, 563-582.

Ciompi, L. (1980a) Catamnestic long-term study on the course of life and aging of schizophrenics. Schizophrenia Bulletin, 6, 606-618.

Ciompi, L. (1980b) The natural history of schizophrenia in the long term. British Journal of Psychiatry, 41, 1178-1183.

Clinical Standards Board for Scotland (2002) National overview of clinical standards for Schizophrenia. CSBS.

Cohen, P. & Cohen, J. (1984) The clinician's illusion. Archives of General Psychiatry, 41, 1178-1183.

Conrad, K. (1958) The early stages of schizophrenia. Die beginnende schizophrenie. G. Thieme, Stuttgart

Corcoran, R., Frith, C.D. & Mercer, G. (1995) Schizophrenia, symptomatology, and social inference: Investigating theory of mind in people with schizophrenia. Schizophrenia Research, 17, 5-13.

Cox, D.R. (1972) Regression models and life-tables. Journal of the Royal Statistical Society, Series B, 187-202.

Cranach, M.V. (1981) Psychiatrische verorgung durch niedergelassene Arzte und ambulante Dienste. In Bauer, M. & Rose H.K. (Eds) Ambulante Dienste fur psychisch Kranke. Koln, Germany: Rhienland-Verlag, 31-41.

Creer, C. & Wing, J.K. (1974) Schizophrenia at home. London. National Schizophrenia Fellowship.

Crow, T.J. (1980) Positive and negative schizophrenic symptoms and the role of dopamine. British Journal of Psychiatry, 137, 383-386.

Crow, T.J., MacMillan, J.F., Johnson, A.L., Johnstone, E.C. (1986) The Northwick Park study of first episodes of schizophrenia. III. Short term outcome in trial entrants and trial eligible patients. British Journal of Psychiatry, 148, 128-133.

Crow, T.J. (1990) The continuum of psychosis and its genetic origins: the 65th Maudsley lecture. British Journal of Psychiatry, 156, 788-797.

Crow, T.J. (1991) The search for the psychosis gene. British Journal of Psychiatry, 158, 611-614.

Crow, T.J. (1998a) From Kraepelin to Kretschmer leavened by Schneider. Archives of General Psychiatry, 55, 502-504.

Crow, T.J. (1998b) Nuclear schizophrenic symptoms as a window on the relationship between thought and speech. British Journal of Psychiatry, 173, 303-309.

Cutting, J. (1985) The Psychology of Schizophrenia. Churchill Livingstone; Edinburgh

David, A.S. (1990) Insight and psychosis. British Journal of Psychiatry, 156, 798-808.

Davis, J.M. (1975) Overview: Maintenance therapy in psychiatry: I. Schizophrenia. American Journal of Psychiatry, 132, 1237-1245.

De Haan L., Linszen DH. & Gorsira R. (1998) Early intervention, social functioning and psychotic relapse of patients with recent-onset schizophrenic disorders. International Clinical Psychopharmacology, 13 (1), 63 – 66

Derogatis, L., Lipman, R. & Covi, L (1973) SCL-90: An outpatient psychiatric rating scale- preliminary report. Psychopharmacology Bulletin, 9 (1), 13-17.

Derogatis, L. & Melisaratos, N. (1983) The Brief Symptom Inventory: an introductory report. Psychological Medicine, 13, 595-605.

Docherty, J.P., Van Kammen, D.P., Siris, S.G. & Marder, S.R. (1978) Stages of onset of schizophrenic psychosis. American Journal of Psychiatry, 135, 420-426.

Doering, S., Muller, E., Kopcke, W., Pietzcker, A., Gaebel, W., Linden, M., Muller, P., Muller-Spahn, F., Tegeler, J. and Schussler, G. (1998) Predictors of relapse and rehospitalization in schizophrenia and schizoaffective disorder. Schizophrenia Bulletin, 24 (1), 87-98.

Donlan, P.T. & Blacker, K.H. (1975) Clinical recognition of early schizophrenic decompensation. Disorders of the Nervous System. 36, 323-330.

Drayton, M., Birchwood, M. & Trower, P. (1998) early attachment experience and recovery from psychosis. British Journal of Clinical Psychology, 37, 269-284.

Drury V., Birchwood M., Cochrane R., Macmillan F. (1996a) Cognitive therapy and recovery from acute psychosis: A controlled trial I. Impact on psychotic symptoms. British Journal of Psychiatry, 169, 593 – 601

Drury V., Birchwood M., Cochrane R., Macmillan F. (1996b) Cognitive therapy and recovery from acute psychosis: A controlled trial II. Impact on recovery time. British Journal of Psychiatry, 169, 602 – 607

Dudley, R.E.J., John, C.H., Young A.W. & Over, D. E. (1997a) Normal and abnormal reasoning in people with delusions. British Journal of Clinical Psychology, 36, 243-258.

Dudley, R.E.J., John, C.H., Young A.W. & Over, D. E. (1997b) The effect of self -referent material on the reasoning of people with delusions. British Journal of Clinical Psychology, 36, 575-584.

Eaton, W., Thara, R., Federman, B., Melton, B. & Laing, K.-Y. (1995) Structure and course of positive and negative symptoms in schizophrenia. Archives of General Psychiatry, 52, 127-134.

Endicott, J., Spitzer, R.L., Fleiss, J.L. & Cohen, J. (1976) The Global Assessment Scale: A procedure for measuring overall severity of psychiatric disturbance. Archives of General Psychiatry, 33, 766-771.

Endicott, J. & Spitzer, R.L. (1978) A diagnostic interview: the schedule for affective disorders and schizophrenia. Archives of General Psychiatry, 35, 837-844.

Erickson, D.H., Beiser, M. & Iacono, W.G. (1999) Social support predicts 5-year outcome in first episode schizophrenia. Journal of Abnormal Psychology, 107 (4); 681-685.

Falloon, I.R.H., Boyd, J.L., McGill, C.W., Razini, J., Moss, H.B. & Gilderman, A.M. (1982) Family management in the prevention of exacerbations of schizophrenia. New England Journal of Medicine, 306, 1437-1440.

Falloon, I.R.H., Boyd, J.L., McGill, C.W., Williamson, M., Razini, J., Moss, H.B., Gilderman, A.M., & Simpson, G.M. (1985) Family management in the prevention of morbidity in schizophrenia. Archives of General Psychiatry, 42, 887-896.

Fear, C.F., Sharp, H., & Healy, D. (1996) Cognitive processes in delusional disorder. British Journal of Psychiatry, 168, 61-67.

Fear, C.F. & Healy, D. (1997) Probabilistic reasoning in obsessive-compulsive and delusional disorders. Psychological Medicine, 27, 199-208.

Feighner, J.P., Robins, E., Guze, S.B., Woodruff, R.A., Winokur, G. & Munoz, R. (1972) Diagnostic criteria for use in psychiatric research. Archives of General Psychiatry, 26, 57-63.

Ferguson, E. & Cox, T. (1993) Exploratory factor analysis: A users guide. International Journal of Selection and assessment, 1, 84-94.

Festinger, L. (1957) A Theory of Cognitive Dissonance, Stanford: Stanford University Press.

First M.B., Spitzer R.L., Gibbon M. & Williams J.B.W. (1994) Structured clinical interview for DSM-IV Axis I disorders (SCID). New York, New York State Psychiatric Institute, Biometrics Research.

Flett, G.L., Pliner, P., & Blankstein, K.R. (1995) Preattributional dimensions in self -esteem and depressive symptomatology. Journal of Social Behaviour and Personality, 10, 101-122.

Foa, E.B., Molnar, C., & Cashman, L. (1995) Change in rape narratives during exposure therapy for posttraumatic stress disorder. Journal of Traumatic Stress, 8, 675-690.

Foster, S.L. & Mash, E.J. (1999) Assessing social validity in clinical treatment research: Issues and procedures, Journal of Consulting and Clinical Psychology, 67 (3), 308-319.

Fowler, D., Garety, P. & Kuipers, E. (1995) Cognitive Behaviour therapy for Psychosis: Theory and Practice. John Wiley & Sons, Chichester.

Fowler, D., Garety, P. & Kuipers, E. (2000) Understanding the outcome findings of cognitive behaviour therapy for psychosis: a cognitive model and its clinical implications. In N. Kashima & I. Falloon (Eds.) Comprehensive treatment of schizophrenia: linking neurobehavioural findings to psychosocial approaches. The 8th Keio International Symposium for Life Sciences and Medicine.

Freedman, B. & Chapman, L.J. (1973) Early subjective experience in schizophrenic episodes. Journal of Abnormal Psychology. 82, 45-54.

Freedman, B.J. (1974) The subjective experience of perceptual and cognitive disturbances in schizophrenia: a review autobiographical accounts. Archives of General Psychiatry, 30, 333-340

Freeman, D., Garety, P., Fowler, D., Kuipers, E., Dunn, G., Bebbington, P., & Hadley, C. (1998) The London-East Anglia randomised controlled trial of cognitive behavioural therapy for psychosis IV: Self-esteem and persecutory delusions. British Journal of Clinical Psychology, 37, 415-430.

Frith, C.D. (1992) The Cognitive Neuropsychology of Schizophrenia. Lawrence Erlbaum Associates.

Frith, C.D. & Corcoran, R. (1996) Exploring theory of mind in people with schizophrenia. Psychological Medicine, 26, 521-530.

Fuller, R.G. (1930) Expectation of hospital life and outcome for mental patients on first admission. Psychiatric Quarterly, 4, 295-323.

Gaebel, W. & Pietzcker, A. (1987) Prospective study of course of illness in schizophrenia: Part II. Prediction of outcome. Schizophrenia Bulletin, 13, 2, 299-306.

Gaebel, W., Frick, U., Kopcke, W., Linden, M., Muller, P., Muller-Spahn, F. Pietzcker, A., & Tegeler, J. (1993) Early neuroleptic intervention in schizophrenia: are prodromal symptoms valid predictors of relapse? British Journal of Psychiatry, 163 (suppl 21): 8-12.

Garety, P.A. (1991) Reasoning and delusions. British Journal of Psychiatry, 159 (Suppl. 14), 14-18.

Garety, P.A., Hemsley, D., & Wessely, S. (1991) Reasoning in deluded schizophrenic and paranoid patients. Journal of Nervous and Mental Disease, 179, 194-201.

Garety, P.A. (1992) Making sense of delusions. Psychiatry, 55, 282-291.

Garety, P. & Hemsley, D. (1994) Delusions: Investigations into the psychology of delusional reasoning. Hove: Psychology Press.

Garety, P.A. & Freeman, D. (1999) Cognitive approaches to delusions: A critical review of theories and evidence. British Journal of Clinical Psychology, 38, 113-154.

Garety, P.A., Kuipers, E., Fowler, D., Freeman, D. & Bebbington, P.E. (2001) A cognitive model of the positive symptoms of psychosis. Psychological Medicine, 31, 189-195.

Garmezy, N. (1968) Process and reactive schizophrenia: some conceptions and issues. In M.M. Katz, J.O. Cole, & W.E. Barton (Eds) The role and methodology of classification in psychiatry and psychopathology (U.S. Public Health Service, Publication 1584) (pp. 419-466). Washington DC: U.S. Government Printing Office.

Gilbert, D.T., Pelham, B.W., & Krull, D.S. (1988) On cognitive busyness: When person perceivers meet persons perceived. Journal of Personality and Social Psychology, 54, 733-740.

Gilbert, P. (1992) Depression: The evolution of powerlessness. Hove: Lawrence Erlbaum Associates.

Gilbert, P. (1997) The evolution of social attractiveness and its role in shame, humiliation, guilt and therapy. British Journal of Medical Psychology, 70, 113-147.

Gilbert, P. & Allen, S. (1998) The role of defect and entrapment (arrested flight) in depression: an exploration of an evolutionary view. Psychological Medicine, 28, 585-598.

Gift, T.E., Strauss, J.S., Kokes, R.F., Harder, D.W. & Ritzler, B.A. (1980) Schizophrenia: Affect and outcome. American Journal of Psychiatry, 137, 580-585.

Gladis, M.M., Gosch, E.A., Dishuk, N.M. & Crits-Christoph, P. (1999) Quality of life: Expanding the scope of clinical significance. Journal of Consulting and Clinical Psychology, 67, 320-331.

Glazer ,W., Prusoff ,B., John ,K., et al (1981) Depression and Social Adjustment Among Chronic Schizophrenic Outpatients. The Journal of Nervous and Mental Disease, 169,712-717.

Goldberg, D. & Williams, P.A. (1988) Users guide to the General Health Questionnaire. Windsor, England: NFER-Nelson.

Goldman-Rakic, P.S. (152) More clues on "latent" schizophrenia point to developmental origins (editorial). American Journal of Psychiatry, 152, 1701-1703.

Goldstein, M.J., Rodnick, E.H., Evans, J.R., May, R.P.A., & Steinberg, M.R. (1978) Drug and family therapy in the aftercare of acute schizophrenics. Archives of General Psychiatry, 35, 1169-1177.

Gottesman, I.I. (1991) Schizophrenia genesis: The origins of madness. New York, W.H. Freeman.

Graf, P. & Mandler, G. (1984) Activation makes words more accessible, but not necessarily more retrievable. Journal of Verbal Learning and Verbal Behaviour, 23, 553-568.

Gray, L. & Gumley, A.I. (In submission to Behavioural and Cognitive Psychotherapy) Metacognitive beliefs, anxiety and predisposition to hallucinatory-type experiences.

Gray, J.A. (1998) Integrating schizophrenia. Schizophrenia Bulletin, 24 (2), 249-266.

Greenberg, L.S. & Pascual-Leone, J. (1997) Emotion and the creation of personal meaning. In Power, M. & Brewin, C.R. (Eds) The Transformation of meaning in psychological therapies: Integrating theory and practice. Wiley.

Gumley, A.I., White, C.A. & Power, K.G. (1999) An interacting cognitive subsystems model of relapse and course of psychosis. Clinical Psychology and Psychotherapy, 6, 261-278.

Gumley, A.I. & Power, K.G. (2000) Is targeting cognitive therapy during early relapse in psychosis feasible? Behavioural and Cognitive Psychotherapy, 28, 161-174.

Hamera, E.K., Paterson, K.A., Young, L.M., & Schaumloffel, M.M. Symptom monitoring in schizophrenia: Potential for enhancement of self care. Archives of Psychiatric Nursing, 6, 324-330.

Harding, C.M., Zubin, J. & Strauss, J.S. (1987) Chronicity in schizophrenia: Fact, partial fact, or artifact? Hospital and Community Psychiatry, 38, 477-486.

Harris, A. & Lubin, A. (1952) The prognosis of functional psychosis. Monatsschrift fur Psychiatrie und Neurologie, 124, 126-145.

Harrison, G., Croudace, T., Mason, P., Glazebrook, C. & Medley, I. (1996) Predicting the long term outcome of schizophrenia. Psychological Medicine, 26, 697-705.

Hawkins, R.P. (1991) Is social validity what we are interested in? Argument for a functional approach. Journal of Applied Behavioural Analysis, 24, 205-213.

Healy, D. and Williams, J.M.G. (1988) Dysrhythmia, dysphoria and depression: and interaction of learned helplessness and circadian dysrhythmia in the pathogenisis of depression. Psychological Bulletin, 103, 163-178.

Healy, D. (1990) Schizophrenia: basic, release, reactive and defect processes. Human Psychopharmacology, 5, 105-121.

Heinrichs, D.W. & Carpenter, W.T. (1985) Prospective study of prodromal symptoms in schizophrenic relapse. American Journal of Psychiatry, 142, 371-373.

Heinrichs, D.W., Cohen, B.P. and Carpenter, W.T. (1985) Early insight in the management of schizophrenic decompensation. Journal of Nervous and Mental Disorders, 173, 13-18.

Hemsley, D.R. (1993) A simple (or simplistic?) cognitive model for schizophrenia. Behaviour Research and Therapy, 31 (7), 633-645.

Hemsley, D.R. (1998) The disruption of sense of self in schizophrenia: potential links with disturbances of information processing. British Journal of Medical Psychology, 71, 115-124.

Herz, M. & Melville, C. (1980) Relapse in Schizophrenia. American Journal of Psychiatry, 137, 801-812.

Herz, M., Szymanski, H. & Simon, J. (1982) Intermittent medication for stable schizophrenic outpatients: An alternative to maintenance medication. American Journal of Psychiatry, 139, 918-922.

Herz, M., Glazer, W., Mizra, M., Mostert, M. & Hafez, H. (1989) Treating prodromal episodes to prevent relapse in schizophrenia. British Journal of Psychiatry, 155, (suppl. 5), 123-127.

Herz M.I., Glazer W., Mostert M., Sheard M.A., Szymanski H.V., Hafez H., Mirza M. & Vana J. (1989) Intermittent vs. maintenance medication in schizophrenia. Two – year results. Archives of General Psychiatry, 48: 333 – 339

Herz, M., Glazer, W.M., Mostert, M.A., Sheard, M.A., Szymanski, H., Hafez, H., Mirza, M. & Vana, J. (1991) Intermittent vs maintenance medication in schizophrenia. Archives of General Psychiatry, 48, 333-339.

Herz M.I., Lamberti J.S., Mintz J., Scott R., O'Dell S.P., McCartan L. & Nix G. (2000) A programme for relapse prevention in schizophrenia: A controlled study. Archives of General Psychiatry, 57 (3), 277 – 283

Hirsch, S.R. & Jolley, A.G. (1989) The dysphoric syndrome in schizophrenia and its implications for relapse. British Journal of Psychiatry. 155 (suppl. 5): 46-50.

Hogan, T.P., Awad, A.G. & Eastwood, R. (1983) A self report scale predictive of drug compliance in schizophrenics: reliability and discriminative validity. Psychological Medicine, 13, 177-183.

Hogarty, G.E., Goldberg, S.C., Schooler, N.R., Ulrich, R.F. (1974) Drug and sociotherapy in the aftercare of schizophrenic patients, II: two-year relapse rates. Archives of General Psychiatry, 31, 603-608.

Hogarty, G.E., Schooler, N.R., Ulrich, R.F., Mussare, F., Herron, E., & Ferro, P. (1979) Fluphenazine and social therapy in the aftercare of schizophrenic patients: relapse analyses of a two-year controlled study of fluphenazine decanoate and fluphenazine hydrochloride. Archives of General Psychiatry, 36, 1283-1294.

Hogarty, G.E., McEvoy, J.P., & Munetz, M. (1988) Dose of fluphenazine, familial expressed emotion, and outcome in schizophrenia. Archive of General Psychiatry, 45, 797-805.

Hogarty, G.E., Anderson, C.M., Reiss, D.J., Kornblith, S.J., Greenwald, D., Ulrich, R.F. & Carter, M. (1991) Family psychoeducation, social skills training, and maintenance chemotherapy in the aftercare treatment of schizophrenia. Archives of General Psychiatry, 48, 340-347.

Hogarty, G.E., Greenwald, D., Ulrich, R.H., Kornblith, S.J., DiBarry, A.L., Cooley, S., Carter, M. & Flesher, S. (1997b) Three year trials of personal therapy among schizophrenic patients living with or independent of family. II Effects on adjustment of patients. American Journal of Psychiatry, 154 (11), 1514-1524.

Hogarty, G.E., Kornblith, S.J., Greenwald, D., DiBarry, A.L., Cooley, S., Ulrich, R.H., Carter, M. & Flesher, S. (1997a) Three year trials of personal therapy among schizophrenic patients living with or independent of family. I Description of study and effects on relapse rates. American Journal of Psychiatry, 154 (11), 1504-1513.

Hollon, S.D. & Garber, J. (1988) Cognitive therapy. In L.Y. Abramson (Ed.) Social cognition and clinical psychology: A synthesis (pp 204-253). New York. Guildford.

House, A., Bostok, J. & Cooper, J. (1987) Depressive syndromes in the year following onset of a first schizophrenic illness. British Journal of Psychiatry, 151, 773-779.

Huber, G., Gross, G., Schuttler, R., & Linz, M. (1980) Longitudinal studies of schizophrenic patients. Schizophrenia Bulletin, 6, 592-605.

Hultman, C.M., Weiselgren, I-M. & Ohman, A. (1997) Relationships between social support, social coping and life events in the relapse of schizophrenic patients. Scandanavian Journal of Psychology, 38, 3-13.

Huq, S.F., Garety, P.A. & Hemsley, D. (1988) Probabilistic judgements in deluded and non-deluded subjects. Quarterly Journal of Experimental Psychology, 40A, 801-812.

Hurley, P.L. & Conwell, M. (1967) Public mental hospital release rates in five states: 1954 and 1960. Public Health Reports, 82, 47-60.

Iqbal, Z., Birchwood, M., Chadwick, P. & Trower, P. (2000) Cognitive approach to depression and suicidal thinking in psychosis 2. Testing the validity of the social ranking model. British Journal of Psychiatry, 177, 522-528.

Inderbitzen, L.B., Lewine, R.R.J., & Scheller-Gilkey, G. (1994) A double blind dose reduction trial of fluphenazine decanoate for chronic unstable schizophrenic patients. American Journal of Psychiatry, 45, 797-805.

Israel R.H. & Johnson N.A. (1956) Discharge and readmission rates: 4,254 consecutive first admissions of schizophrenia. American Journal of Psychiatry, 112, 903-909.

Jablensky, A., Schwartz, R. & Tomov, T. (1980) World Health Organisation collaborative study on impairments and disabilities associated with the schizophrenic disorders. A preliminary communication: objectives and methods. Acta Psychiatrica Scandinavica, 62, (suppl), 285.

Jablensky, A., Sartorius, N., Emberg, G., Anker, M., Korten, A, Cooper, J. & Bertelson, A. (1992) Schizophrenia: Manifestations, incidence and course in different cultures. A World Health Organisation Ten Country Study. Psychological Medicine, Monograph Supplement 20.

Jacobson, N.S., Follette, W.C. & Ravensdorf, D. (1984) Psychotherapy outcome research: Methods for reporting variability and evaluating clinical significance. Behaviour Therapy, 15, 336-352.

Jacobson, N.S. & Truax, P. (1991) Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. Journal of Consulting and Clinical Psychology, 59, 12-19.

Jacobson, N.S., Roberts, L.J., Berns, S.B. & McGlinchey, J.B. (1999) Methods for defining and determining clinical significance of treatment effects: Description, application and alternatives. Journal of Consulting and Clinical Psychology, 67 (3), 300-307.

Jackson, C. & Birchwood, M. (1996) Early Intervention in psychosis: Opportunities for secondary prevention. British Journal of Clinical Psychology, 35, 487-502.

Jackson, C. & Iqbal, Z. (2000) Psychological adjustment to early psychosis. In M. Birchwood, D. Fowler, & C. Jackson (Eds) Early intervention in psychosis. John Wiley & Sons.

Jackson, H.J., McGorry, P., Edwards, J., Hulbert, C., Henry, C., Francey, S., Maude, D., Locks, J., Power, P., Harrington, S. & Dudgeon, P. (1998) Cognitively orientated psychotherapy for early psychosis (COPE). The British Journal of Psychiatry, 172, (Suppl. 33), 93-100.

Janoff-Bulman, R. (1992) Shattered assumptions: Towards a new psychology of trauma. New York, Free Press.

Jentsch, J.D. & Roth, R.H. (1999) The neuropsychopharmacology of phencyclidine: From NMDA receptor hypofunction to the dopamine hypothesis of schizophrenia. Neuropsychopharmacology, 20, 3, 201-225.

Johnson, D.A.W. (1981) Studies of depressive symptoms in schizophrenia. British Journal of Psychiatry, 139, 89-101.

Johnson, D.A.W., Ludlow, J.M., Street, K. & Taylor, R.D.W. (1987) Double blind comparison of half dose and standard dose fluphenthixol decanoate in the maintenance treatment of stabilised outpatients with schizophrenia. British Journal of Psychiatry, 151, 638-638.

Johnstone, E.C., Crow, T.J., Johnson, A.L., & MacMillan, J.F. (1986) The Northwick Park study of first episodes of schizophrenia. I. Presentation of illness and problems relating to admission. British Journal of Psychiatry, 148, 115-120.

Johnstone, E.C., Crow, T.J., Frith, C.D. & Owens, D.G.C. (1988) The Northwick Park 'functional' psychosis study: diagnosis and treatment response. Lancet, ii, 119-126.

Johnstone, E.C. (1991) Disabilities and circumstances of schizophrenic patients – a follow-up study. British Journal of Psychiatry, 159, Suppl 13.

Johnstone, E.C., MacMillan, J.F., Frith, C.D., Benn, D.K., & Crow, T.J. (1990) Further investigation of the predictors of outcome following first psychotic episodes. British Journal of Psychiatry, 157, 182-189.

Johnstone, E.C., Crow, T.J., Frith, C.D. & Owens, D.G.C. (1991) The Northwick Park 'functional' psychosis study. Phase 2: Maintenance treatment. Journal of Psychopharmacology, 5 (4), 388-395.

Johnstone, E.C., Frith, C.D., Crow, T.J. et al (1992) The Northwick Park 'functional' psychosis study: diagnosis and outcome. Psychological Medicine, 22, 331-346.

Jolley, A.G., Hirsch, S.R., McRink, A., et al. (1989) A trial of brief intermittent neuroleptic prophylaxis for selected schizophrenic outpatients: clinical outcome at one year. British Medical Journal. 298, 985-990.

Jolley, A.G., Hirsch, S.R., Morrison, E., et al. (1990) A trial of brief intermittent neuroleptic prophylaxis for selected schizophrenic outpatients: clinical and social outcome at two years. British Medical Journal, 301, 837-842.

Jorgensen, P. (1998) Early signs of psychotic relapse in schizophrenia. British Journal of Psychiatry, 172, 327-330.

Kane, J.M., Rifkin, A., Quitkin, F, Nayak, D. & Ramos Lorenzi, J. (1982) Fluphenazine versus placebo in patients with remitted, acute first episode schizophrenia. Archives of General Psychiatry, 39, 70-73.

Kane, J.M., Rifkin, A. & Woerner, M. (1983) Low dose neuroleptic treatment of outpatient schizophrenics. Archives of General Psychiatry, 40, 893-896.

Kaney, S. & Bentall, S.R. (1989) Persecutory delusions and attributional style. British Journal of Medical Psychology, 62, 191-198.

Kaney, S. & Bentall, S.R. (1992) Persecutory delusions and the self serving bias: evidence from a contingency judgement task. Journal of Nervous and Mental Disease, 180, 773-780.

Kaplan, E.L. & Meier, P. (1958) Nonparametric estimation from incomplete observations. Journal of the American Statistical Association, 53, 457-481.

Kavanagh, D. (1992) Recent developments in expressed emotion and schizophrenia. British Journal of Psychiatry, 37 (1), 51-56.

Kay, S., Fizbein ,A., Opler ,L. (1987) The Positive and Negative Syndrome Scale (PANSS) for Schizophrenia. Schizophrenia Bulletin. 13, 261-275.

Kazdin, A.E. & Wilson, G.T. (1978) Criteria for evaluating psychotherapy. Archives of General Psychiatry, 35, 407-416.

Kazdin, A.E. (1999) The meanings and measurement of clinical significance. Journal of Consulting and Clinical Psychology, 67 (3), 332-399.

Keefe, R.S.E., Arnold, M.C., Bayen, U.J. & Harvey, P.D. (1999) Source monitoring deficits in patients with schizophrenia; a multinominal modelling analysis. Psychological Medicine, 29 (4), 903-914.

Kelly, G.R. & Scott, J.E. (1990) Medication compliance and health education among outpatients with chronic mental disorders. Medical Care, 28 (2), 1181-1197.

Kemp, R., Kirov, B., Everitt, B., Hayward, P. & David, A. (1998) Randomised controlled trial of compliance therapy; 18-month follow-up. British Journal of Psychiatry, 172, 413-419.

Kendall, P.C. & Grove, W.M. (1988) Normative comparisons in therapy outcome. Behavioural Assessment, 10, 147-158.

Kendall, P.C., Marrs-Garcia, A., Nath, S.R. & Sheldrick, R.C. (1999) Normative comparisons for the evaluation of clinical significance. Journal of Consulting and Clinical Psychology, 67 (3), 285-299.

Kendler, K.S., Neale, M.C. & Walsh, D. (1995) Evaluating the spectrum concept of schizophrenia in the Roscommon Family Study. American Journal of Psychiatry, 152, 749-754.

Kinderman, P. (1994) Attentional bias, persecutory delusions and the self-concept. British Journal of Medical Psychology, 67, 56-66.

Kinderman, P., & Bentall, R.P. (1997) Causal attributions in paranoia: Internal, personal and situational attributions for negative events. Journal of Abnormal Psychology, 106, 341-345.

Kinderman, P., Dunbar, R.I.M., & Bentall, R.P. (1998) Theory of mind deficits and causal attributions. British Journal of Psychology, 71, 339-349.

Kinderman, P., & Bentall, R.P. (2000) Self discrepancies and causal attributions: Studies of hypothesised relationships. British Journal of Clinical Psychology, 39, 255-273.

Kingdon, D.G. & Turkington, D. (1994) Cognitive Behavioural therapy of Schizophrenia. Lawrence Erlbaum Associates. Hove.

Knights, A. and Hirsch, S.R. (1981) 'Revealed' depression and drug treatment for schizophrenia. Archives of General Psychiatry, 38, 806-811.

Kokes, R.F., Strauss, J.S. and Klorman, R. (1977) Premorbid adjustment in schizophrenia: Concepts, measures, and implications. Part II. Measuring premorbid adjustment: the instruments and their development. Schizophrenia Bulletin, 3, 186-213.

Kraepelin, E. (1896) Psychiatrie. Barth: Leipzig.

Krawiecka, M., Goldberg, D. & Vaughan, M. (1977) Standardised psychiatric rating scale for chronic psychotic patients. Acta Psychiatrica Scandinavica, 36, 25-31.

Krstev, H., Jackson, H., & Maude, D. (1999) An investigation of attributional style in first episode psychosis. British Journal of Clinical Psychology, 88, 181-194.

Kuipers E., Garety P., Fowler D., Dunn G., Bebbimgton P., Freeman D., Hadley C. (1997) London – East Anglia randomised controlled trial of cognitive – behavioural therapy for psychosis II: Effects of the treatment phase. British Journal of Psychiatry, 171, 319 – 327

Kuipers E., Fowler D., Garety P., Chisolm D., Freeman D., Dunn G., Bebbington P., Hadley C (1998) London – East Anglia randomised controlled trial of cognitive – behavioural therapy for psychosis III: Follow – up and economic evaluation at 18 months. British Journal of Psychiatry, 173, 61– 68

Kumar, S., Thara, R. & Rajkumar, S. (1989) Coping with symptoms of relapse in schizophrenia. European Archives of Psychiatry and Neurological Sciences, 239, 213-215.

Langfeldt, G. (1960) Diagnosis and prognosis of schizophrenia. Proceedings of the Royal Society of Medicine, 53, 1047-1052.

Larsen, T.K., Moe, L.C., Vibe-Hansen, L., & Johannessen, J.O. (2000) Premorbid functioning versus duration of untreated psychosis in 1 year outcome in first episode psychosis. Schizophrenia Research, 45, 1-9.

Lazarus, R.S. and Launier, R. (1978) Stress related transactions between person and environment. In: Pervin, L.A., Lewis, M. (eds) Perspectives in transactional psychology. Plenum Press, New York.

Leff, J., Kuipers, L., Berkowitz, R., & Sturgeon, D. (1985) A controlled trial of social intervention in the families of schizophrenic patients: Two-year follow-up. British Journal of Psychiatry, 146, 594-600.

Leff, J. & Vaughn, C. (1985) Expressed emotion in families. New York: Guildford Press.

Leff, J., Wig, N.N., Ghosh, A., Bedi, H., Menon, D.K., Kuipers, L., Korten, A., Ernberg, G., Day, R., Sartorious, N. & Jablensky, A. (1987) Expressed emotion and schizophrenia in North India. III: influence of relatives' expressed emotion on the course of schizophrenia in Chandigarh. British Journal of Psychiatry, 151, 166-173.

Lehrman, N.S. (1960) A state hospital population five years after admission: A yardstick for evaluative comparison of follow-up studies. Psychiatric Quarterly, 34, 658-681.

Levin, S. (1983) Smooth pursuit movement in schizophrenia- What does it mean? Schizophrenia Bulletin, 9, 37-44.

Liddle, P.F. and Barnes, T.R.E. (1988) The subjective experience of deficits in schizophrenia. Comprehensive Psychiatry, 29, 157-164

Lieberman, J., Jody, D., Geisler, S., Vital-Herne, J., Alvir, J.M.J., Walsleben, J. & Woerner, M.G. (1989) Treatment outcome in first episode schizophrenia. Psychopharmacology Bulletin, 25, 92-96.

Linszen D.H., Dingemans P.M.A.J., Lenior M.E., Scholte W.F., De Haan L. & Goldstein M.J. (1998) Early detection and intervention in Schizophrenia. International Clinical Psychopharmacology, 13 (3), 31 – 34

Locke, B.Z. (1962) Outcome of first hospitalization of patients with schizophrenia. Public Health Reports, 77, 801-805.

Luten, A.G., Ralph, J.A. & Mineka, S. (1997) Pessimistic attributional style: Is it specific to depression versus anxiety versus negative affect? Behaviour Research and Therapy, 35, 703-719.

Lyon, H.M., Kaney, S., & Bentall, R.P. (1994) The defensive function of persecutory delusions: Evidence from attribution tasks. British Journal of Psychiatry, 164, 637-646

McCandless-Glincher, L., McKnight, S., Hamera, E., Smith, B.L., Paterson, K., & Plumlee, A.A. (1986) Use of symptoms by schizophrenics to monitor and regulate their illness. Hospital and Community Psychiatry, 37, 929-933.

MacGlashan, T. and Carpenter, W. (1976) Post psychotic depression in schizophrenia. Archives of General Psychiatry, 33, 231-301.

MacGlashan, T. (1982) Aphanisis: the syndrome of pseudo depression in chronic schizophrenia. Schizophrenia Bulletin, 8, 118-134.

MacGlashan, T. (1984) A selective review of recent North American long-term follow-up studies of schizophrenia. Schizophrenia Bulletin, 14, 515-542.

MacGlashan, T. (1987) Recovery style from mental illness and long term outcome. Journal of Nervous and Mental Disease, 175, 681-685.

MacLeod, C. (1990) Mood disorders and cognition. In Cognitive Psychology: An International Review (Ed. Eyesenck, M.W.), pp 9-56, Chichester, Wiley.

MacLeod, C. (1991) Clinical anxiety and selective encoding of threatening information. International Review of Psychiatry, 3, 279-292.

Macleod, C. & Mathews, A. (1991) Cognitive experimental approaches to the emotional disorders. In: Handbook of behaviour therapy and psychological science: An integrative approach (Ed. Martin, P.R.), pp. 115-150. New York, Pergamon.

MacLeod, C. & McLauglin, K. (1995) Implicit and explicit memory bias in anxiety: A conceptual replication. Behaviour Research and Therapy, 33, 1-14.

McGhie, A. and Chapman, J. (1961) Disorders of attention perception in early schizophrenia. British Journal of Medical Psychology, 34, 103-116

McGorry, P.D., Chanes, A., McCarthy, E., Van Reil, R., McKenzie, D. & Singh, B. (1991) Post-traumatic stress disorder following recent onset psychosis. An unrecognised post psychotic syndrome. Journal of Nervous and Mental Disease, 179, 253-258.

MacGuire, E.A., Gadian, D.G., Johnsrude, I.S., Good, C.D., Ashburner, J., Frackowiak, R.S. & Frith C.D. (2000) Navigation-related structural change in the hippocampi of taxi drivers. Proceedings of the National Academy of Science, (14 March 2000) 10, 1073.

McWalter, H.S., Mercer, R., Sutherland, M & Watt, A. (1961) Outcomes of treatment of schizophrenia in a northeast Scottish mental hospital. American Journal of Psychiatry, 118, 529-533.

Maher, B.A. and Ross, J.S. (1984) Delusions. In H.E. Adams & P. Sutker (Eds), Comprehensive handbook of psychopathology. Pp 383-411. New York: Plenum

Maher, B.A. (1988) Anomalous experiences and delusional thinking. In Oltmanns, T.F. & Maher, B.A. (eds) Delusional Beliefs. New York: Wiley.

Malla, A.K. & Norman, R.M.G. (1994) Prodromal symptoms of schizophrenia. British Journal of Psychiatry, 164, 487-493.

Malla, A.K. & Norman, R.M.G. (1995) Prodromal symptoms of relapse in schizophrenia: A review. Schizophrenia Bulletin, 21, 4, 527-536.

Malzberg, B. (1952a) Rates of discharge and rates of mortality among first admissions to the New York civil state hospitals. Mental Hygiene, 36, 104-120.

Malzberg, B. (1952b) Rates of discharge and rates of mortality among first admissions to the New York civil state hospitals: second paper. Mental Hygiene, 36, 618-638.

Malzberg, B. (1953) Rates of discharge and rates of mortality among first admissions to the New York civil state hospitals: third paper. Mental Hygiene, 37, 619-654.

Marder, S.R. Van Putten, T. Mintz, J., Lebell, M., McKenzie, J. & May, P.R.A. (1984) Low and conventional dose maintenance therapy with fluphenazine decanoate. Archives of general Psychiatry, 44, 518-521.

Marder, S.R. Van Putten, T. Mintz, J., Lebell, M., McKenzie, J. & May, P.R.A. (1987) Costs and benefits of two doses of fluphenazine. Archives of General Psychiatry, 41, 1025-1029.

Marder, S.R., Mintz, J., Van Putten, T., Lebell, M., Wirshing, W.C., & Johnson-Cronk, K. (1991) Early prediction of relapse in schizophrenia: An application of receiver operating characteristic (ROC) methods. Psychopharmacology Bulletin, 27, 1, 79-82.

Marder, S.R., Wirshing, W.C., Van Putten, T., Mintz, J., McKenzie, J., Johnson -Cronk, K., Lebell, M., & Liberman, R.P. (1994) Fluphenazine vs placebo supplementation for prodromal signs of relapse in schizophrenia. Archives of General Psychiatry, 51, 280-287.

Marder, S.R. (1999) Antipsychotic drugs and relapse prevention. Schizophrenia Research, 35, (Suppl), 87-92.

Mari, J.J. & Streiner, D.L. (1994) An overview of family interventions and relapse in schizophrenia: Meta-analysis of research findings. Psychological Medicine, 24, 565-578.

Mari, J.J. & Streiner, D.L. (1996) family intervention for people with schizophrenia (Cochrane Review). In: The Cochrane Library, Iss. 1. Oxford, U.K.: Update Software.

Mason, P., Harrison, G., Glazebrook, C., Medley, I., Dalkin, T. & Croudace, T. (1995) Characteristics of outcome in schizophrenia at 13 years. British Journal of Psychiatry, 167, 596-603.

Mathews, A., Mogg, K., May, J., & Eysenck, M.W. (1989) Implicit and explicit memory bias in anxiety. Journal of Abnormal Psychology, 98, 236-240.

Mavromatis, A. (1987) Hypnogogia; the unique state of consciousness between wakefulness and sleep. Routledge and Kegan Paul, London

May, P.R.A., Tuma, H., & Dixon, W.J. (1976a) Schizophrenia- A follow up study of results of treatment: I. Designs and other problems. Archives of General Psychiatry, 33, 474-478.

May, P.R.A., Tuma, H., Yale, C., Potepan, P. & Dixon, W.J. (1976b) Schizophrenia- A follow up study of results of treatment: II. Hospital stay over two to five years. Archives of General Psychiatry, 33, 481-486.

Menezes, P.R., Johnson, S., Thornicroft, G., et al (1996) Drug and Alcohol Problems Among Individuals with Severe Mental Illnesses in South London. British Journal of Psychiatry ,168, 612-619.

Meuser, K.T., Yarnold, P.R., Levinson, D.F., et al (1990) Prevalence of Substance Abuse in Schizophrenia: Demographic and Clinical Correlates. Schizophrenia Bulletin, 16, 31-56.

Meyer, H., Taiminen, T., Vuori, T., Aijala, A. & Helenius, H. (1999) Post traumatic stress disorder symptoms related to psychosis and acute involuntary hospitalisation in schizophrenic and delusional patients. Journal of Nervous and Mental Disease, 187, 343-352.

Mintz, S. and Alpert, M. (1972) Imagery, vividness, reality testing and schizophrenic hallucinations. Journal of Abnormal Psychology, 79, 310-316.

Moos, R.H. and Tsu, V.D. (1977) The crisis of physical illness. In: Moos, R.H. (Ed) Coping with physical illness. Plenum, London.

Morgenstern, H., Glazer, W.M., Niedweicki, D. & Nourjah, P. (1987) The impact of neuroleptic medication on tardive dyskinesia: a meta-analysis of published studies. American Journal of Public Health, 77, 717-724.

Morrison, A.P., Haddock, G., & Tarrier, N. (1995) Intrusive thoughts and auditory hallucinations: a cognitive approach. Behavioural and Cognitive Psychotherapy, 23, 259-264.

Morrison, A.P. & Haddock, G. (1997) Cognitive factors in source monitoring and auditory hallucinations. Psychological medicine, 27, 669-679.

Morrison, A.P. (1999) A cognitive analysis of the maintenance of auditory hallucinations: Are voices to schizophrenia what bodily sensations are to panic? Behavioural and Cognitive Psychotherapy, 26 (4), 289-302.

Morrison, A.P., Wells, A. & Nothard, S. (2000) Cognitive factors in predisposition to auditory and visual hallucinations. British Journal of Clinical Psychology, 39, 67-78

Mortimer, A.M., Bentham, P., McKay, A.P., Quemade, I., Clare, L., Eastwood, N. & McKenna, P.J. (1996) Delusions in schizophrenia: A phenomenological and psychological exploration. Cognitive Neuropsychiatry, 1, 289-303.

Neuchterlein, K.H. (1977) Reaction time and attention in schizophrenia: A critical evaluation of the data and theories. Schizophrenia Bulletin, 3, 373-428.

Neuchterlein, K.H. & Dawson, M.E. (1984) A Heuristic Vulnerability/ Stress Model of Schizophrenic Episodes. Schizophrenia Bulletin, 10, 2, 300-309.

Norman, D.A. & Bobrow, D.G. (1976) On the role of active memory processes in perception and cognition. In C.N. Cofer (Ed) The structure of human memory, pp. 118-132. San Francisco: Freeman.

Ohmori, T., Ito, K., Abekawa, T. & Koyama, T. (1999) Psychotic relapse and maintenance therapy in paranoid schizophrenia. European Archives of Psychiatry and Clinical Neuroscience, 249, 73-78.

Overall, J.E. & Gorham, D.R. (1962) The Brief Psychiatric Rating Scale. Psychological Reports, 10, 799-812.

Padesky, C.A. & Greenberger, D. (1995) Clinicians Guide to Mind over Mood. Guildford Press, NY.

Peralta, V. & Cuesta, M.J. (1998) Diagnostic significance of Schneiderian first rank symptoms in schizophrenia. British Journal of Psychiatry, 174, 243-248.

Peralta, V., Cuesta, M.J. & Farre, C. (1997) Factor structure of symptoms in functional psychoses. Biological Psychiatry, 42, 806-815.

Peters, E., Day, S. & Garety, P.A. (1997) From preconscious to conscious processing: Where does the abnormality lie in delusions? Schizophrenia Research, 24, 120.

Peterson, D.B. & Olson, G.W. (1964) First admitted schizophrenics in drug era: Follow up ANOKA cohort, 1956-1958. Archives of General Psychiatry, 11, 137-144.

Pharoah, F.M., Mari, J.J. & Streiner, D.L. (1999) family intervention for schizophrenia. (Cochrane Review). In: The Cochrane Library, Iss. 4. Oxford, U.K.: Update Software.

Pietzcker, A. (1983) Psychiatrische Klassifikationen. Empirische Untersuchungen zur psychiatrischen diagnostik und klassifikation auf der grunglage des AMP-Systems. Habilitationsschrift. Berlin: Freie Universitat Berlin.

Pietzcker, A. & Gaebel, W. (1987) Prospective study of course of illness in schizophrenia: Part I. Outcome at 1 year. Schizophrenia Bulletin, 13, 2, 287-297.

Pinto, A., La Pia, S., Manella, R., Giorgio, D., & DiSimone, L. (1999) Cognitive behavioural therapy and clozapine for clients with treatment refractory schizophrenia. Psychiatric Services, 50, 901-904.

Pitschel-Walz, G., Kissling, W. & Bauml, J. (1998) Psychoeducation. In. The Workshop Manager: Evidence Based Medicine in Schizophrenia (CD-ROM). London, U.K.: OCC Multimedia.

Pitschel-Walz, G., Leucht, S., Bauml, J., Kissling, W. & Engel, R.R. (2001) The effect of family interventions on relapse and rehospitalisation in schizophrenia- a meta-analysis. Schizophrenia Bulletin, 27 (1), 73-92.

Phillips, L. (1953) Case history data and prognosis in schizophrenia. Journal of Nervous and Mental Disease, 117, 515-525.

Posner, C.M., Wilson, K.G., Kral, M.J., Lander, S. & McIlwraith, R.D. Family psychoeducational support groups in schizophrenia. American Journal of Orthopsychiatry, 62 (2), 206-218.

Pritchard, W.S. (1986) Cognitive event-related potential correlates in schizophrenia. Psychological Bulletin, 100, 43-66.

Prusoff, B.A., Williams, D., Weissman, M. and Astrachan, B. (1979) Treatment of secondary depression in schizophrenia. Archives of General Psychiatry, 36, 569-575.

Quitkin, F., Rifkin, A. and Klien, D.F. (1974) Neurological soft signs in schizophrenia and character disorders. Archives of General Psychiatry, 33, 845-853

Rabiner, C.J., Wegner, J.T., & Kane, J.M. (1986) Outcome study of first episode psychosis: I. Relapse rates after 1 year. American Journal of Psychiatry, 143, 1155-1158.

Rachman, S.J. (1978) An anatomy of obsessions. Behaviour Analysis and Modification, 2, 235-278.

Rada, R.T. and Donlon, P.T. (1975) Depression and the acute schizophrenic process. Psychosomatics, 16, 116-119.

Rajkumar, S. & Thara, R. (1989) Factors affecting relapse in schizophrenia. Schizophrenia Research, 2, 403-409.

Ram, R., Bromet, E.J., Eaton, W.W., Pato, C. & Schwartz, J.E. (1992) The natural course of schizophrenia: A review of first admission studies. Schizophrenia Bulletin, 18, 2, 185-207.

Randolf, E.T., Spencer, E.T.H., Glynn, S.M., Paz, G.G., Leong, G.B., Shaner, A.L., Strachan, A., Van Vort, W., Escobar, J.I. & Liberman, R.P. (1994) Behavioural family managerment in schizophrenia- outcome of a clinic based intervention. British Journal of Psychiatry, 164, 501-506.

Resick, P.A. & Schnicke, M.K. (1993) Cognitive processing therapy for rape victims: A treatment manual. Sage. California.

Richards, A. & French, C. (1991) Effects of encoding and anxiety on implicit an explicit memory performance. Personality and Individual Differences, 12, 131-139.

Robins, E. & Guze, S.B. (1970) Establishment of diagnostic validity in psychiatric illness: its application to schizophrenia. American Journal of Psychiatry, 126, 983-987.

Robinson, D, Woerner, M.G., Alver, J., Bilder, R., Goldman, R., Geisler, S., Koreen, A., Sheitman, B., Chakos, M., Mayerhoff, D. & Leiberman, J. (1999) Predictors of relapse following response from a first episode of schizophrenia or schizoaffective disorder. Archive of General Psychiatry, 56, 241-247.

Robson, P. (1989) Development of a new self-report measure of self-esteem. Psychological Medicine, 19, 513-518.

Rooske, O. & Birchwood, M. (1998) Loss, humiliation and entrapment as appraisals of schizophrenic illness: a prospective study of depressed and non-depressed patients. British Journal of Psychiatry, 37, 259-268.

Rooskies, E. and Lazarus, R.S. (1980) Coping theory and the teaching of coping skills. In: Davidson, S.M. (Ed) Behavioural Medicine: Changing health lifestyles. Bruner and Mazel. New York.

Rosanoff, A.J. (1914) A statistical study of prognosis in insanity. Journal of the American Medical Association, 62, 3-6.

Rosenberg, M. (1965) Society and the adolescent self-image. Princeton, NJ: Princeton University Press.

Roth, B. (1970) The seemingly ubiquitous depression following acute schizophrenic episodes: a neglected area of clinical discussion. American Journal of Psychiatry, 127, 91-98.

Ro-Trock, G.K., Wellisch, D.K. & Schoolar, J.C. (1977) A family therapy outcome study in an inpatient setting. American Journal of Othopsychiatry, 47 (3), 514-522.

Rupp, C. & Fletcher, E.K. (1940) A five to ten year follow up study of 641 schizophrenic cases. American Journal of Psychiatry, 96, 877-888.

Salkovskis, P.M. (1985) Obsessive-Compulsive problems: a cognitive-behavioural analysis. Behaviour Research and Therapy, 25, 751-783.

Salkovskis, P.M. & Kirk, J. (1997) Obsessive Compulsive Disorder. In Clark, D.M. & Fairburn, C.G. (Eds) Science and Practice of Cognitive Behaviour Therapy. Oxford University Press.

Salokangas, R.K.R. & Stengard, E. (1983) Gender and short term outcome in schizophrenia. Schizophrenia Research, 3, 333-345.

Sartorius, N., Jablensky, A., Korten, A., Ernberg, G., Anker, M., Cooper, J.E. & Day, R. (1986) Early manifestations and first contact incidence of schizophrenia in different cultures: A preliminary report of the initial evaluation phase of the WHO Collaborative Study on Determinants of Outcome of Severe Mental Disorders. Psychological Medicine, 16, 909-928

Schubart, C., Krumm, B., Biehl, H. & Schwartz, R. (1986) Measurement of social disability in a schizophrenic patient group: Definition, assessment, and outcome over two-years in a cohort of schizophrenic patients of recent onset. Social Psychiatry, 21, 1-9.

Schneider, K. (1950) Klinische Psychopathologie. Stuttgart: Theime.

Schneider, K. (1959) Clinical Psychopathology. Translated by M.W. Hamilton. New York: Grune and Stratton, Inc.

Scottish Schizophrenia Research Group (1988) The Scottish first episode study: V. One year follow-up. British Journal of Psychiatry, 152, 470-476.

Scottish Schizophrenia Research Group (1989a) The Scottish first episode study: VI. Computerised tomography brain scams in patients and controls. British Journal of Psychiatry, 154, 492-498.

Scottish Schizophrenia Research Group (1989b) The Scottish first episode schizophrenia study: VII. Two year follow-up. Acta Psychiatrica Scandinavica. 80, 597-602.

Segal, D.L., Hersen, M., Van Hasselt, V.B. (1994) Reliability of the Structured Clinical Interview for DSM III –R : An Evaluative Review. Comprehensive Psychiatry, 35, 316-332.

Sensky, T., Turkington, D., Kingdon, D., Scott, J.L., Scott, J., Siddle, R., O'Carroll, M., & Barnes, T.R.E. (2000) A randomised controlled trial of cognitive behavioural therapy in schizophrenia resistant to medication. Archives of General Psychiatry, 57, 165-172.

Serretti, A., Macciardi, F. & Semeraldi, E. (1996) Identification of symptomatologic patterns common to major psychoses: proposal for a phenotype definition. American Journal of Medical Genetics and Neuropsychiatric Genetics, 67, 393-400.

Shapiro, D.A. (1996) Outcome research. In Behavioural and Mental Health Research, 2nd Ed. (Eds G. Parry & F. Watts). Hove: Lawrence Erlbaum.

Spencer, J.H., Glick, I.D., Haas, G.L., Clarkin, J.F., Lewis, A.B., Peyser, J., DeMane, N. & Good-Ellis, M. (1988) A randomised controlled trial of inpatient family intervention: III. Effects at 6-month and 18 month follow-ups. American Journal of Psychiatry, 145, 1115-1121.

Shepherd, M. (1957) A study of major psychoses in an English county. London. Oxford University Press.

Shepherd, M., Watt, D., Falloon, I. & Smeeton, N. (1989) The natural history of schizophrenia: a five year follow-up study of outcome and prediction in a representative sample of schizophrenics. Psychological Medicine. (Suppl 15), 46.

Shmaonova, L.M., Lieberman, Yu. I., Lobova, E.K. et al (1982) Frequency of acute schizophrenic episodes ("attacks") and probability of predictability. Psychiatric Journal of the University of Ottowah, 8, 5-15.

Singh, A.N., Saxena, B. and Nelson, H.O. (1978) A controlled clinical study of treatment in chronic schizophrenic patients with profound depresses symptomatology. Current Therapy and Research, 23, 485-501.

Siris, S.G., van Kammen, D. and Docherty, J. (1978) Use of antidepressant drugs in schizophrenia. Archives of General Psychiatry, 35, 1368-1377.

Siris, S.G., Adan, F., Cohen, M. et al (1988) Postpsychotic Depression and Negative Symptoms : An Investigation of Syndromal Overlap. American Journal of Psychiatry, 145, 1532-1497.

Slade, P.D. & Bentall, R.P. (1988) Sensory deception: A scientific analysis of hallucinations. London: Croom-Helm.

Smari, J., Stefansson, S. & Thorgilsson, H. (1994) Paranoia, self-consciousness and social cognition in schizophrenics. Cognitive Therapy and Research, 18, 387-399.

Speigel, G. & Wissler, T. (1987) Using family consultation as a psychiatric aftercare for schizophrenic patients. Hospital and Community Psychiatry, 38 (10), 1096-1099.

Spielberger, C.D., Gorsuch, R.L. & Lushene, R. (1968) Self-evaluation questionnaire. Palo-Alto, CA: Consulting Psychologists Press.

Spitzer, R.L., Endicott, J. & Robins, E. (1977) Research Diagnostic Criteria (RDC) for a selected group of functional disorders. New York, NY: New York Biometrics Research Division.

Spitzer, R.L., Endicott, J. & Robins, E. (1985) Research Diagnostic Criteria: Rationale and reliability. Archives of General Psychiatry, 35, 773-782.

Steinberg, H. Green, R. and Durrell, J. (1967) Depression occurring during recovery from schizophrenia symptoms. American Journal of Psychiatry, 124, 699-702.

Stephens, J.H., Astrup, C. & Mangrum, J.C. (1966) Prognostic factors in recovered and deteriorated schizophrenics. American Journal of Psychiatry, 122, 1116-1121.

Stephens, J.H. (1978) Long term prognosis and follow up in schizophrenia. Schizophrenia Bulletin, 4, 25-47.

Strakowski, S.M., Tohen, M., Stoll, A.L., et al (1993) Co-morbidity in Psychosis at First Hospitalisation. American Journal of Psychiatry 150 :5, 752-757.

Strauss, J.S. & Carpenter, W.T. (1972) The prediction of outcome in schizophrenia: I. Characteristics of outcome. Archives of General Psychiatry, 27, 739-746.

Strauss, J.S. & Carpenter, W.T. (1978) The prognosis of schizophrenia: Rationale for a multidimensional concept. Schizophrenia Bulletin, 4, 56-67.

Strauss, J.S. & Carpenter, W.T. (1979) The prognosis of Schizophrenia. In L. Bellack (Ed) Disorders of the schizophrenic syndrome (pp. 291-319). New York: Basic Books.

Stroop, J.R. (1938) Factors affecting speed of serial verbal reactions. Psychological Monographs, 50, 38-48.

Subotnik, K.L. & Nuechterlein, K.H. (1988) Prodromal signs and symptoms of schizophrenic relapse. Journal of Abnormal Psychology, 97 (4), 405-412.

Sullwood, L. (1977) Symptome schizophrener erkrankungen. Uncharakteristische basisstorungen. Monographien aus dem Gesamtgebiet der Psychiatrie 13. Berlin, Heidelberg, New York: Springer.

Tabachnick, B.G. & Fidell, L.S. (2001) Using multivariate statistics, Fourth Edition. Allyn & Bacon, Boston.

Tait, A., McNay, L., Gumley, A.I., O'Grady, M. (In press) The development of an individualised early signs monitoring system for the detection of relapse in schizophrenia. Journal of Mental Health.

Tarrier, N., Barrowclough, C., Vaughn, C., Bamrah, J.S., Porceddu, K., Watts, S. & Freeman, H. (1989) Community management of schizophrenia- two-year follow-up of a behavioural intervention with families. British Journal of Psychiatry, 154, 625-628.

Tarrier, N., Barrowclough, C., & Bamrah, J.S. (1991) Prodromal symptoms of relapse in schizophrenia. Social Psychiatry and Psychiatric Epidemiology, 26, 157-161.

Tarrier, N. (1992) Management and Modification of Residual Positive Psychotic Symptoms. In Birchwood M. and Tarrier N. (Eds) Innovations in the Psychological Management of Schizophrenia: Assessment, Treatment and Services. Wiley.

Tarrier, N. & Turpin, G. (1992) Psychosocial factors, arousal, and schizophrenic relapse. British Journal of Psychiatry, 161, 3-11.

Tarrier N., Beckett R., Harwood S., Baker A., Yusupoff L., Ugarteburu I. (1993) A trial of two cognitive-behavioural methods of treating drug-residual psychotic symptoms in schizophrenic patients: Outcome. British Journal of Psychiatry, 162, 524 – 532

Tarrier, N., Haddock, G. & Barrowclough, C. (1998) Training and dissemination: Research into practice in innovative psychosocial treatments for schizophrenia. In T. Wykes, N. Tarrier, & S. Lewis (Eds) Outcome and Innovation in Psychological Treatment of Schizophrenia. John Wiley & Sons: Chichester.

Tarrier N., Yusupoff L., Kinney C., McCarthy E., Gledhill A., Haddock G., Morris, J. (1998) Randomised controlled trial of intensive cognitive behaviour therapy for patients with chronic schizophrenia. British Medical Journal, 317, 303 – 307

Tarrier N., Wittkowsky A., Kinney C., McCarthy E., Morris J., Humphreys L. (1999) Durability of the effects of cognitive-behavioural therapy in the treatment of chronic schizophrenia: 12-month follow-up. British Journal of Psychiatry, 1999, 174: 500 – 504

Tarrier N., Kinney C., McCarthy E., Humphreys L., Wittkowsky A. (2000) Two – year follow – up of cognitive – behavioural therapy and supportive counselling in the treatment of persistent symptoms in chronic schizophrenia. Journal of Consulting and Clinical Psychology, 68 (5), 917 – 922

Tarrier, N., Kinney, C., McCarthy, E., Wittowski, A., Yusupoff, L. & Gledhill, A. (2001) Are some types of psychotic symptoms more responsive to cognitive behaviour therapy? Behavioural and Cognitive Psychotherapy, 29, 45-55.

Teasdale, J.D. & Barnard, P.J. (1993) Affect, Cognition and Change: Re-modelling Depressive Thought. Lawrence Erlbaum Associates.

Teasdale, J.D., Taylor, M.J., Cooper, Z., Hayhurst, H., & Paykel, E.S. (1995) Depressive thinking: shifts in construct accessibility or in schematic mental models? Journal of Abnormal Psychology, 104, 500-507.

Teasdale, J.D. (1997a) The transformation of meaning: the interacting cognitive subsystems approach. In Power, M. & Brewin, C.R. (Eds) The Transformation of meaning in psychological therapies: Integrating theory and practice. Wiley.

Teasdale, J.D. (1997b) The relationship between cognition and emotion: the mind in place in mood disorders. In Clark, D.M. & Fairburn, C.G. (Eds) Science and Practice of Cognitive Behaviour Therapy. Oxford University Press.

Teasdale, J.D., Segal, Z.V., Williams, J.M.G., Ridgeway, V.A., Soulsby, J.M. & Lau, M.A. (2000) Prevention of relapse/ recurrence in Major Depression by mindfulness-based cognitive therapy. Journal of Consulting and Clinical Psychology, 68 (4), 615-623.

Telles, C., Karno, M., Mintz, J., Paz, G., Arias, M., Tucker, D. & Lopez, S. (1995) Immigrant families coping with schizophrenia- behavioural family intervention versus case management with a low income Spanish speaking population. British Journal of Psychiatry, 167, 473-479.

Thara, R., Henrietta, M., Joseph, A., Rajkumar, S. & Eaton, W. (1994) Ten-year course of schizophrenia- the Madras Longitudinal Study. Acta Psychiatrica Scandinavica, 90, 329-336.

Thurm, I. And Haefner, H. (1987) Perceived vulnerability, relapse risk, and coping in schizophrenia: An explorative study. European Archives of Psychiatry and Neurological Sciences, 237, 46-53.

Toomey, R., Faraone, S.V., Simpson, J.C. & Tsuang, M.T. (1998) Negative, positive and disorganised symptom dimensions in schizophrenia, major depression and bipolar disorder. Journal of Nervous and Mental Diseases, 186, 470-476.

Trower, P. & Chadwick, P.D.J. (1995) Pathways to the defence of self: A theory of two types of paranoia. Clinical Psychology: Science and Practice, 2, 263-278.

Tsuang, M.T., Woolson, R.F., & Fleming, J.A. (1979) Long term outcome of major psychosis: I. Schizophrenic and affective disorders compared with psychiatrically symptom-free surgical conditions. Archives of General Psychiatry, 39, 1295-1301.

Tsuang, M.T., Stone, W.S. & Faraone, S.V. (1999) Schizophrenia: a review of genetic studies. Harvard Review of Psychiatry, 7, 185-207.

Tsuang, M.T., Stone, W.S. & Faraone, S.V. (2000) Toward reformulating the diagnosis of schizophrenia. American Journal of Psychiatry, 157, 7, 1041-1050.

Vaillant, G. (1962) The prediction of recovery in schizophrenia. Journal of Nervous and Mental Disease, 135, 534-543.

Vaillant, G. (1964) Prospective prediction of schizophrenic remission. Archives of General Psychiatry, 11, 509-518.

Vaillant, G. (1978) A 10-year follow-up of remitting schizophrenics. Schizophrenia Bulletin, 4, 78-85.

Van den Bosch, R.J. and Rozendaal, N. (1988) Subjective cognitive dysfunction, eye tracking, and slow brain potentials in schizophrenic and schizoaffective patients. Biological Psychiatry, 24, 741-746

Van Os, J., Hanssen, M., Bijl, R.V. & Ravelli, A. (2000) Strauss (1969) revisited: a psychosis continuum in the general population? Schizophrenia Research, 45, 11-20.

Van Putten, T.T. and May, P. (1978) Akinetic depression in schizophrenia. Archives of General Psychiatry, 35, 1101-1107.

Vaughn, K., Doyle, M., McConaghy, N., Blaszczynski, A., Fox, A. & Tarrier, N. (1992) The relationship between relatives expressed emotion and schizophrenic relapse: An Australian application. Social Psychiatry and Psychiatric Epidemiology, 27, 10-15.

Weiner, B. (1985) Spontaneous causal thinking. Psychological Bulletin, 97, 74-84.

Weiner, B. (1986) An attributional theory of motivation and emotion. New York: Springer-Verlag.

Wells, A. & Mathews, G. (1994) Attention and Emotion: A Clinical Perspective. Hillsdale, NJ: Laurence Erlbaum Associates Associates

Wells, A. (1997) Cognitive Therapy for Anxiety Disorders. Chichester: Wiley.

Wells, A. (2000) Meta-cognition and Emotional Disorders. Chichester: Wiley.

Wiersma, D., Nienhuis, F.J., Sloff C.J. & Giel R. (1998) Natural course of schizophrenic disorders: A 15-year follow-up of a Dutch incidence cohort. Schizophrenia Bulletin, 24, (1), 75-85.

Williams, J.M.G., Watts, F.N., Macleod, C., & Mathews, A. (1988) Cognitive Psychology and the Emotional Disorders. Chichester, Wiley.

Wing, J.K. (1966) Five-year outcome in early schizophrenia. Proceedings of the Royal Society of medicine, 59, 17-18.

Wing, J.K., Cooper, J.E. & Sartorius, N. (1974) Measurement and classification of psychiatric symptoms- an instruction manual for the PSE and Catego program. Cambridge. Cambridge University Press.

World Health Organisation (1978a) Schizophrenia: An international follow-up study. London: Wiley & Sons.

World Health Organisation (1978b) Mental Disorders: Glossary and guide to their classification in accordance with the ninth revision of the International Classification of Disease. Geneva: WHO.

Xiang, M., ran, M. & Li, S. (1994) A controlled evaluation of psychoeducational family intervention in a rural Chinese community. British Journal of Psychiatry, 165, 544-548.

Xiong, W., Phillips, R., Hu, X., Wang, R., Dai, Q., Kleinman, J. & Kleinman, A. (1994) family based intervention for schizophrenic patients in China. British Journal of Psychiatry, 165, 239-247.

Yusupoff, L. Haddock, G. Sellwood, W. Tarrier, N. Cognitive Behavioural Therapy for Hallucinations and Delusions: Current Practices and Future Trends. In Salkovskis, P.M. Trends in Cognitive and Behavioural Therapies. Wiley, 1996.

Zeitlin, S. & McNally, R. (1991) Implicit and explicit memory bias for threat in Post -traumatic Stress Disorder. Behaviour Research and Therapy, 29, 451-457.

Zhang, M., Wang, M., Li, J. & Philips, M.R. (1994) British Journal of Psychiatry, 165 (Suppl 24), 96-102.

Zimbardo, P.G., Andersen, S.M. & Kabat, L.G. (1981) Induced hearing deficit generates experimental paranoia. Science, 212, 1529-1531

Zoellner, L.A., Craske, M.G., Rapee, R.M. (1996) Stability of catastrophic cognitions in panic disorder. Behaviour Research and Therapy, 34, 399-402.

Zoellner, L.A., Sacks, M.B., & Foa, E.B. (2001) Stability of emotions for traumatic memories in acute and chronic PTSD. Behaviour Research and Therapy, 39, 697-711.

Zubin, J., Steinhauer, S.R., Condray, R. (1992) Vulnerability to relapse in schizophrenia. British Journal of Psychiatry, 161 (Suppl 18), 13-18.

Appendix A

Positive and Negative Syndrome Scale

Date of Assessment: ..... Observation Period: .....

POSITIVE AND NEGATIVE SYNDROME SCALE

Circle the appropriate rating for each dimension following the specified clinical interview. Refer to the rating manual for item definitions, description of anchoring points, and scoring procedure.

POSITIVE SCALE

	Abs	Min	Mild	Mod	M/S	Sev	X
Delusions	1	2	3	4	5	6	7
Conceptual Disorganisation	1	2	3	4	5	6	7
Hallucinatory Behaviour	1	2	3	4	5	6	7
Excitement	1	2	3	4	5	6	7
Grandiosity	1	2	3	4	5	6	7
Suspiciousness/ persecution	1	2	3	4	5	6	7
Hostility	1	2	3	4	5	6	7
NEGATIVE SCALE							
Blunted Affect	1	2	3	4	5	6	7
Emotional Withdrawal	1	2	3	4	5	6	7
Poor Rapport	1	2	3	4	5	6	7
Passivity/ apathy	1	2	3	4	5	6	7
Abstract Thinking	1	2	3	4	5	6	7
Lack of Spontaneity	1	2	3	4	5	6	7
Stereotyped thinking	1	2	3	4	5	6	7

GENERAL PSYCHOPATHOLOGY SCALE

Somatic Concern	1	2	3	4	5	6	7
Anxiety	1	2	3	4	5	6	7
Guilt feelings	1	2	3	4	5	6	7
Tension	1	2	3	4	5	6	7
Mannerisms and posturing	1	2	3	4	5	6	7
Depression	1	2	3	4	5	6	7
Motor retardation	1	2	3	4	5	6	7
Uncooperativeness	1	2	3	4	5	6	7
Unusual thought content	1	2	3	4	5	6	7
Disorientation	1	2	3	4	5	6	7
Poor Attention	1	2	3	4	5	6	7
Lack of judgement and insight	1	2	3	4	5	6	7
Disturbance of volition	1	2	3	4	5	6	7
Poor impulse control	1	2	3	4	5	6	7
Preoccupation	1	2	3	4	5	6	7
Active social avoidance	1	2	3	4	5	6	7

SCALE	**TOTAL**
Positive	
Negative	
Composite	
General Psychopathology	

Investigators Signature:.....

PANSS RATING CRITERIA

Positive Scale (P)

P1. **Delusions**. Beliefs which are unfounded, unrealistic, and idiosyncratic. Basis for rating: thought content expressed in the interview and its influence on social relations and behaviour.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Presence of one or two delusions which are value, uncrystallized, and not tenaciously held. Delusions do not interfere with thinking, social relations, or behaviour.

4. **Moderate** - Presence of either a kaleidoscopic array of poorly formed, unstable delusions or of a few well-formed delusions that occasionally interfere with thinking, social relations, or behaviour.

5. **Moderate severe** - Presence of numerous well-formed delusions that are tenaciously held and occasionally interfere with thinking, social relations, or behaviour.

6. **Severe** - Presence of a stable set of delusions which are crystallized, possibly systematized, tenaciously held, and clearly interfere with thinking, social relations, and behaviour.

7. **Extreme** - Presence of a stable set of delusions which are either highly systematized or very numerous, and which dominate major facets of the patient's life. This frequently results in inappropriate and irresponsible action, which may even jeopardize the safety of the patient or others.

P2. **Conceptual disorganization**. Disorganized process of thinking characterized by disruption of a goal-directed sequencing, e.g., circumstantiality, targentiality, loose associations, non sequiturs, gross illogicality, or thought block. Basis for rating: cognitive-verbal processes observed during the course of interview.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Thinking is circumstantial, tangential, or paralogical. There is some difficulty in directing thoughts towards a goal, and some loosening of associations may be evidenced under pressure.

4. **Moderate** - Able to focus thoughts when communications are brief and structured, but become loose or irrelevant when dealing with more complex communications or when under minimal pressure.

5. **Moderate severe** - Generally has difficulty in organizing thoughts, as evidenced by frequent irrelevancies, disconnectedness, or loosening of associations even when not under pressure.

6. **Severe** - Thinking is seriously derailed and internally inconsistent, resulting in gross irrelevancies and disruption of thought processes, which occur almost constantly.

7. **Extreme** - Thoughts are disrupted to the point where the patient is incoherent. There is marked loosening of associations, which results in total failure of communication, e.g. "word salad" or mutism.

P3. **Hallucinatory behaviour**. Verbal report or behaviour indicating perceptions which are not generated by external stimuli. These may occur in the auditory, visual, olfactory, or somatic realms. Basis for rating: Verbal report and physical manifestations during the course of interview as well as reports of behaviour by primary care workers or family.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - One or two clearly formed but infrequent hallucinations, or else a number of vague abnormal perceptions which doe not result in distortions of thinking or behaviour.

4. **Moderate** - Hallucinations occur frequently but nor continuously, and the patient's thinking and behaviour are affected only to a minor extent.

5. **Moderate severe** - Hallucinations are frequent, may involve more than one sensory modality, and tend to distort thinking and/or disrupt behaviour. Patient may have a delusional interpretation of these experiences and respond to them emotionally and, on occasion, verbally as well.

6. **Severe** - Hallucinations are present almost continuously, causing major disruption of thinking and behaviour. Patient treats these as real perceptions, and functioning is impeded by frequent emotional and verbal responses to them.

7. **Extreme** - Patient is almost totally preoccupied with hallucinations, which virtually dominate thinking and behaviour. Hallucinations are provided a rigid delusional interpretation and provoke verbal and behavioural responses, including obedience to command hallucinations.

P4. **Excitement** - Hyperactivity as reflected in accelerated motor behaviour, heightened responsivity to stimuli, hypervigilance, or excessive mood lability. Basis for rating: Behavioural manifestations during the course of interview as well as reports of behaviour by primary care workers or family.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Tends to be slightly agitated, hypervigilant, or mildly overaroused throughout the interview, but without distinct episodes of excitement or marked mood lability. Speech may be slightly pressured.

4. **Moderate** - Agitation or overarousal is clearly evident throughout the interview, affecting speech and general mobility, or episodic outbursts occur sporadically.

5. **Moderate severe** - Significant hyperactivity or frequent outbursts of motor activity are observed, making it difficult for the patient to sit still for longer than several minutes at any given time.

6. **Severe** - Marked excitement dominates the interview, delimits attention, and to some extent affects personal functions such as eating and sleeping.

7. **Extreme** - Marked excitement seriously interferes in eating and sleeping and makes interpersonal interactions virtually impossible. Acceleration of speech and motor activity may result in incoherence and exhaustion.

P5. **Grandiosity**. Exaggerated self-opinion and unrealistic convictions of superiority, including delusions of extraordinary abilities, wealth, knowledge, fame, power, and moral righteousness. Basis for rating: thought content expressed in the interview and its influence on behaviour.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Some expansiveness or boastfulness is evident, but without clear-cut grandiose delusions.

4. **Moderate** - Feels distinctly and unrealistically superior to others. Some poorly formed delusions about special status or abilities may be present but are not acted upon.

5. **Moderate severe** - Clear-cut delusions concerning remarkable abilities, status, or power are expressed and influence attitude but not behaviour.

6. **Severe** - Clear-cut delusions of remarkable superiority involving more than one parameter (wealth, knowledge, fame, etc.) are expressed, notably influence interactions, and may be acted upon.

7. **Extreme** - Thinking, interactions, and behaviour are dominated by multiple delusions of amazing ability, wealth, knowledge, fame, power, and/or moral stature, which may take on a bizarre quality.

P6. **Suspiciousness/persecution**. Unrealistic or exaggerated ideas of persecution, as reflected in guardedness, a distrustful attitude, suspicious hypervigilance, or frank delusions that others mean one harm. Basis for rating: thought content expressed in the interview and its influence on behaviour.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Presents a guarded or even openly distrustful attitude, but thoughts, interactions, and behaviour are minimally affected.

4. **Moderate** - Distrustfulness is clearly evident and intrudes on the interview and/or behaviour, but there is no evidence of persecutory delusions. Alternatively, there may be indication of loosely formed persecutory delusions, but these do not seem to affect the patient's attitude or interpersonal relations.

5. **Moderate severe** - Patient shows marked distrustfulness, leading to major disruption of interpersonal relations, or else there are clear-cut persecutory delusions that have limited impact on interpersonal relations and behaviour.

6. **Severe** - Clear-cut pervasive delusions of persecution which may be systematized and significantly interfere in interpersonal relations.

7. **Extreme** - A network of systematized persecutory delusions dominates the patient's thinking, social relations, and behaviour.

P7. **Hostility** - Verbal and nonverbal expressions of anger and resentment, including sarcasm, passive-aggressive behaviour, verbal abuse, and assaultiveness. Basis for rating: interpersonal behaviour observed during the interview and reports by primary care workers or family.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Indirect or restrained communication of anger, such as sarcasm, disrespect, hostile expressions, and occasional irritability.

4. **Moderate** - Presents an overtly hostile attitude, showing frequent irritability and direct expressions of anger or resentment.

5. **Moderate severe**. Patient is highly irritable and occasionally verbally abusive or threatening.

6. **Severe** - Unco-operativeness and verbal abuse or threats notably influence the interview and seriously impact upon social relations. Patient may be violent and destructive but is not physically assaultive towards others.

7. **Extreme** - Marked anger results in extreme unco-operativeness, precluding other interactions, or in episode(s) of physical assault toward others.

PANSS RATING CRITERIA

Negative Scale (N)

N1. **Blunted affect.** Diminished emotional responsiveness as characterized by a reduction in facial expression, modulation of feelings, and communicative gestures. Basis for rating: observation of physical manifestations of affective tone and emotional responsiveness during the course of interview.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Changes in facial expression and communicative gestures seem to be stilted, forced, artificial, or lacking in modulation.

4. **Moderate** - Reduced range of facial expression and few expressive gestures result in a dull appearance.

5. **Moderate severe** - Affect is generally "flat", with only occasional changes in facial expression and a paucity of communicative gestures.

6. **Severe** - Marked flatness and deficiency of emotions exhibited most of the time. There may be unmodulated extreme affective discharges, such as excitement, rage or inappropriate uncontrolled laughter.

7. **Extreme** - Changes in facial expression and evidence of communicative gestures are virtually absent. Patient seems constantly to show a barren or "wooden" expression.

N2. **Emotional withdrawal** - Lack of interest in, involvement with, and affective commitment to life's events. Basis for rating: reports of functioning from primary care workers or family and observation of interpersonal behaviour during the course of interview.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Usually lacks initiative and occasionally may show deficient interest in surrounding events.

4. **Moderate** - Patient is generally distanced emotionally from the milieu and its challenges but, with encouragement, can be engaged.

5. **Moderate severe** - Patient is clearly detached emotionally from persons and events in the milieu, resisting all efforts at engagement. Patient appears distant, docile, and purposeless but can be involved in communication at least briefly and tends to personal needs, sometimes with assistance.

6. **Severe** - Marked deficiency of interest and emotional commitment results in limited conversation with others and frequent neglect of personal functions, for which the patient requires supervision.

7. **Extreme** - Patient is almost totally withdrawn, uncommunicative, and neglectful of personal needs as a result of profound lack of interest and emotional commitment.

N3 **Poor rapport**. Lack of interpersonal empathy, openness in conversation, and sense of closeness, interest, or involvement with the interviewer. This is evidenced by interpersonal distancing and reduced verbal and nonverbal communication. Basis for rating: interpersonal behaviour during the course of interview.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Conversation is characterized by a stilted, strained, or artificial tone. It may lack emotional depth or tend to remain on an impersonal, intellectual plane.

4. **Moderate** - Patient typically is aloof, with interpersonal distance quite evident. Patient may answer questions mechanically, act bored, or express disinterest.

5. **Moderate severe** - Disinvolvement is obvious and clearly impedes the productivity of the interview. Patient may tend to avoid eye or face contact.

6. **Severe** - Patient is highly indifferent, with marked interpersonal distance. Answers are perfunctory, and there is little nonverbal evidence of involvement. Eye and face contact are frequently avoided.

7. **Extreme** - Patient is totally uninvolved with the interviewer. Patient appears to be completely indifferent and consistently avoids verbal and nonverbal interactions during the interview.

N4. **Passive/apathetic social withdrawal** Diminished interest and initiative in social interactions due to passivity, apathy, anergy, or avolition. This leads to reduced interpersonal involvements and neglect of activities of daily living. Basis for rating: reports on social behaviour from primary care workers or family.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Shows occasional interest in social activities but poor initiative. Usually engages with others only when approached first by them.

4. **Moderate** - Passively does along with most social activities but in a disinterested or mechanical way. Tends to recede into the background.

5. **Moderate severe** - Passively participates in only a minority of activities and shows virtually no interest or initiative. Generally spends little time with others.

6. **Severe** - Tends to be apathetic and isolated, participating very rarely in social activities and occasionally neglecting personal needs. Has very few spontaneous social contacts.

7. **Extreme** - Profoundly apathetic, socially isolated, and personally neglectful.

N5. **Difficulty in abstract thinking**. Impairment in the use of the abstract-symbolic mode of thinking, as evidenced by difficulty in classification, forming generalizations, and proceeding beyond concrete or egocentric thinking in problem-solving tasks. Basis for rating: responses to questions on similarities and proverb interpretation, and use of concrete vs. abstract mode during the course of the interview.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Tends to give literal or personalized interpretations to the more difficult proverbs and may have some problems with concepts that are fairly abstract or remotely related.

4. **Moderate** - Often utilizes a concrete mode. Has difficulty with most proverbs and some categories. Tends to be distracted by functional aspects and salient features.

5. **Moderately severe** - Deals primarily in a concrete mode, exhibiting difficulty with most proverbs and many categories.

6. **Severe** - Unable to grasp the abstract meaning of any proverbs or figurative expressions and can formulate classifications for only the most simple of similarities. Thinking is either vacuous or locked into functional aspects, salient features, and idiosyncratic interpretations.

7. **Extreme** - Can use only concrete modes of thinking. Shows no comprehension of proverbs, common metaphors or similes, and simple categories. Even salient and functional attributes do not serve as a basis for classification. This rating may apply to those who cannot interact even minimally with the examiner due to marked cognitive impairment.

N6 **Lack of spontaneity and flow of conversation.** Reduction in the normal flow of communication associated with apathy, avolition, defensiveness, or cognitive deficit. This is manifested by diminished fluidity and productivity of the verbal-interactional process. Basis for rating: cognitive-verbal processes observed during the course of interview.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Conversation shows little initiative. Patient's answers tend to be brief and unembellished, requiring direct and leading questions by the interviewer.

4. **Moderate** - Conversation lacks free flow and appears uneven or halting. Leading questions are frequently needed to elicit adequate responses and proceed with conversation.

5. **Moderate severe** - Patient shows a marked lack of spontaneity and openness, replying to the interview's questions with only one or two brief sentences.

6. **Severe** - Patient's responses are limited mainly to a few words or short phrases intended to avoid or curtail communication. (E.g., !I don't know", "I'm not at liberty to say".) Conversation is seriously impaired as a result, and the interview is highly unproductive.

7. **Extreme** - Verbal output is restricted to, at most, an occasional utterance, making conversation not possible.

N7. **Stereotype thinking**. Decreased fluidity, spontaneity, and flexibility of thinking, as evidenced in rigid, repetitious, or barren thought content. Basis for rating: cognitive-verbal processes observed during the interview.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Some rigidity shown in attitudes or beliefs. Patient may refuse to consider alternative positions or have difficulty in shifting from one idea to another.

4. **Moderate** - Conversation revolves around a recurrent theme, resulting in difficulty in shifting to a new topic.

5. **Moderate severe** - Thinking is rigid and repetitious to the point that, despite the interviewer's efforts, conversation is limited to only two or three dominating topics.

6. **Severe** - Uncontrolled repetition of demands, statements, ideas, or questions which severely impairs conversation.

7. **Extreme** - Thinking, behaviour, and conversation are dominated by constant repetition of fixed ideas or limited phrases, leading to gross rigidity, inappropriateness, and restrictiveness of patient's communication.

PANSS RATING CRITERIA

General Psychopathology Scale (G)

G1. **Somatic concern**. Physical complaints or beliefs about bodily illness or malfunctions. This may range from a vague sense of ill being to clear-cut delusions of catastrophic physical disease. Basis for rating: thought content expressed in the interview.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Distinctly concerned about health or somatic issues, as evidenced by occasional questions and desire for reassurance.

4. **Moderate** - Complains about poor health or bodily malfunction, but there is no delusional conviction, and overconcern can be allayed by reassurance.

5. **Moderate severe** - Patient expresses numerous or frequent complaints about physical illness or bodily malfunction, or else patient reveals one or two clear-cut delusions involving these themes but is not preoccupied by them.

6. **Severe** - Patient is preoccupied by one or a few clear-cut delusions about physical disease or organic malfunction, but affect is not fully immersed in these themes, and thoughts can be diverted by the interviewer with some effort.

7. **Extreme** - Numerous and frequently reported somatic delusions, or only a few somatic delusions of a catastrophic nature, which totally dominate the patient's affect and thinking.

G2. **Anxiety** - Subjective experience of nervousness, worry, apprehension, or restlessness, ranging from excessive concern about the present or future to feelings of panic. Basis for rating: verbal report during the course of interview and corresponding physical manifestations.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Expresses some worry, overconcern, or subjective restlessness, but no somatic and behavioural consequences are reported or evidence.

4. **Moderate** - Patient reports distinct symptoms of nervousness, which are reflected in mild physical manifestations such as fine hand tremor and excessive perspiration.

5. **Moderate severe** - Patient reports serious problems of anxiety which have significant physical and behavioural consequences, such as marked tension, poor concentration, palpitations, or impaired sleep.

6. **Severe** - Subjective state of almost constant fear associated with phobias, marked restlessness, or numerous somatic manifestations.

7. **Extreme** - Patient's life is seriously disrupted by anxiety, which is present almost constantly and at times reaches panic proportion or is manifested in actual panic attacks.

G3. **Guilt feelings**. Sense of remorse or self-blame for real or imagined misdeeds in the past. Basis for rating: verbal report of guilt feelings during the course of interview and the influence on attitudes and thoughts.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Questioning elicits a vague sense of guilt or selfblame for a minor incident, but the patient clearly is not overly concerned.

4. **Moderate** - Patient expresses distinct concern over his responsibility for a real incident in his life but is not pre-occupied with it, and attitude and behaviour are essentially unaffected.

5. **Moderate severe** - Patient expresses a strong sense of guilt associated with self-depreciation or the belief that he deserves punishment. The guilt feelings may have a delusional basis, may be volunteered spontaneously, may be a source of preoccupation and/or depressed mood, and cannot be allayed readily by the interviewer.

6. **Severe** - Strong ideas of guilt take on a delusional quality and lead to an attitude of hopelessness or worthlessness. The patient believes he should receive harsh sanctions for the misdeeds and may even regard his current life situation such punishment.

7. **Extreme** - Patient's life is dominated by unshakeable delusions of guilt, for which he feels deserving of drastic punishment, such as life imprisonment, torture, or death. There may be associated suicidal thoughts or attribution of others' problems to one's own past misdeeds.

G4. **Tension**. Overt physical manifestations of fear, anxiety and agitation, such as stiffness, tremor, profuse sweating and restlessness. Basis for rating: verbal report attesting to anxiety and, thereupon, the severity of physical manifestations of tension observed during the interview.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Posture and movements indicate slight apprehensiveness, such as minor rigidity, occasional restlessness, shifting of position, or fine rapid hand tremor.

4. **Moderate** - A clearly nervous appearance emerges from various manifestations, such as fidgety behaviour, obvious hand tremor, excessive perspiration, or nervous mannerisms.

5. **Moderate severe** - Pronounced tension is evidenced by numerous manifestations, such as nervous shaking, profuse sweating, and restlessness, but conduct in the interview is not significantly affected.

6. **Severe** - Pronounced tension to the point that interpersonal interactions are disrupted. The patient, for example, may be constantly fidgeting, unable to sit still for long, or show hyperventilation.

7. **Extreme** - Marked tension is manifested by signs of panic or gross motor acceleration, such as rapid restless pacing and inability to remain seated for longer than a minute, which makes sustained conversation not possible.

G5. **Mannerisms and posturing**. Unnatural movements or posture as characterised by an awkward, stilted, disorganised, or bizarre appearance. Basis for rating: observation of physical manifestations during the course of interview as well as reports from primary care workers or family.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Slight awkwardness in movements or minor rigidity of posture.

4. **Moderate** - Movements are notably awkward or disjointed, or an unnatural posture is maintained for brief periods.

5. **Moderate severe** - Occasional bizarre rituals or contorted posture are observed, or an abnormal position is sustained for extended periods.

6. **Severe** - Frequent repetition of bizarre rituals, mannerisms, or stereotyped movements, or a contorted posture is sustained for extended periods.

7. **Extreme** - Functioning is seriously impaired by virtually constant involvement in ritualistic, manneristic, or stereotyped movements or by an unnatural fixed posture which is sustained most of the time.

G6. **Depression**. Feelings of sadness, discouragement, helplessness, and pessimism. Basis for rating: verbal report of depressed mood during the course of interview and its observed influence on attitude and behaviour.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Expresses some sadness or discouragement only on questioning, but there is no evidence of depression in general attitude or demeanour.

4. **Moderate** - Distinct feelings of sadness or hopelessness, which may be spontaneously divulged, but depressed mood has no major impact on behaviour or social functioning, and the patient usually can be cheered up.

5. **Moderate severe** - Distinctly depressed mood is associated with obvious sadness, pessimism, loss of social interest, psychomotor retardation, and some interference in appetite and sleep. The patient cannot be easily cheered up.

6. **Severe** - Markedly depressed mood is associated with sustained feelings of misery, occasional crying, hopelessness, and worthlessness. In addition, there is major interference in appetite and/or sleep as well as in normal motor and social functions, with possible signs of self-neglect.

7. **Extreme** - Depressive feelings seriously interfere in most major functions. The manifestations include frequent crying, pronounced somatic symptoms, impaired concentration, psychomotor retardation, social disinterest, self-neglect, possible depressive or nihilistic delusions, and/or possible suicidal thoughts or action.

G7. **Motor retardation** - Reduction in motor activity as reflected in slowing or lessening of movements and speech, diminished responsiveness to stimuli, and reduced body tone. Basis for rating: manifestations during the course of interview as well as reports by primary care workers or family.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Slight but noticeable diminution in rate of movements and speech. Patient may be somewhat underproductive in conversation and gestures.

4. **Moderate** - Patient is clearly slow in movements, and speech may be characterized by poor productivity, including long response latency, extended pauses, or slow pace.

5. **Moderate severe** - A marked reduction motor activity renders communications highly unproductive or delimits functioning in social and occupational situations. Patient can usually be found sitting or lying down.

6. **Severe** - Movements are extremely slow, resulting in a minimum of activity and speech. Essentially the day is spent sitting idly or lying down.

7. **Extreme** - Patient is almost completely immobile and virtually unresponsive to external stimuli.

G8. **Unco-operativeness**. Active refusal to comply with the will of significant others, including the interviewer, hospital staff, or family, which may be associated with distrust, defensiveness, stubbornness, negativism, rejection of authority, hostility, or belligerence. Basis for rating: interpersonal behaviour observed during the course of interview as well as reports by primary care workers or family.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Complies with an attitude of resentment, impatience, or sarcasm. May inoffensively object to sensitive probing during the interview.

4. **Moderate** - Occasional outright refusal to comply with normal social demands, such as making own bed, attending scheduled programs, etc. The patient may project a hostile, defensive or negative attitude but usually can be worked with.

5. **Moderate severe** - Patient frequently is incompliant with the demands of his milieu and may be characterized by others as an "outcast" or having "a serious attitude problem." Unco-operativeness is reflected inn obvious defensiveness or irritability with the interviewer and possible unwillingness to address many questions.

6. **Severe** - Patient is highly unco-operative, negativistic, and possibly also belligerent. Refuses to comply with most social demands and may be unwilling to initiate or conclude the full interview.

7. **Extreme** - Active resistance seriously impact on virtually all major areas of functioning. Patient may refuse to join in any social activities, tend to personal hygiene, converse with family or staff, and participate even briefly in an interview.

G9. **Unusual thought content** - Thinking characterized by strange, fantastic, or bizarre ideas, ranging from those which are remote or atypical to those which are distorted, illogical, and patently absurd. Basis for rating: thought content expressed during the course of interview.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Thought content is somewhat peculiar or idiosyncratic, or familiar ideas are framed in an odd context.

4. **Moderate** - Ideas are frequently distorted and occasionally seem quite bizarre.

5. **Moderate severe** - Patient expresses many strange and fantastic thoughts (e.g. being the adopted son of a king, being an escapee from death row) or some which are patently absurd (e.g. having hundreds of children, receiving radio messages from outer space through a tooth filling).

6. **Severe** - Patient expresses many illogical or absurd ideas or some which have a distinctly bizarre quality (e.g. having three heads, being a visitor from another planet).

7. **Extreme** - Thinking is replete with absurd, bizarre, and grotesque ideas.

G10. **Disorientation**. Lack of awareness of one's relationship to the milieu, including persons, place, and time, which may be due to confusion or withdrawal. Basis for rating: responses to interview questions or orientation.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - General orientation is adequate but there is some difficulty with specifics. For example, patient knows his location but not the street address, knows hospital staff names but not their functions, knows the month but confuses the day of week with an adjacent day, or errs in the date by more than two days. There may be narrowing of interest evidenced by familiarity with the immediate but not extended milieu, such as ability to identify staff but nor the Mayor, Governor, or President.

4. **Moderate** - Only partial success in recognizing persons, places, and time. For example, patient knows he is in a hospital but not its name, knows the name of his city but not the burrough or district, knows the name of his primary therapist but not many other direct care workers, knows the year and season but not sure of the month.

5. **Moderate severe** - Considerable failure in recognizing persons, place, and time. Patient has only a vague notion of where he is and seems unfamiliar with most people in his milieu. He may identify the year correctly or nearly so but not know the current month, day of week or even the season.

6. **Severe** - Marked failure in recognizing persons, place, and time. For example, patient has now knowledge of his whereabouts, confuses the date by more than one year, can name only one or two individuals in his current life.

7. **Extreme** - Patient appears completely disoriented with regard to persons, place and time. There is gross confusion or total ignorance about one's location, the current year, and even the most familiar people, such as parents, spouse, friends and primary therapist.

G11. **Poor attention.** Failure in focused alertness manifested by poor concentration, distractibility from internal and external stimuli, and difficulty in harnessing, sustaining, or shifting focus to new stimuli. Basis for rating: manifestations during the course of interview.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Limited concentration evidenced by occasional vulnerability to distraction or faltering attention toward the end of the interview.

4. **Moderate** - Conversation is affected by the tendency to be easily distracted, difficulty in long sustaining concentration on a given topic, or problems in shifting attention to new topics.

5. **Moderate severe** - Conversation is seriously hampered by poor concentration, distractibility, and difficulty in shifting focus appropriately.

6. **Severe** - Patient's attention can be harnessed for only brief moments or with great effort, due to marked distraction by internal or external stimuli.

7. **Extreme** - Attention is so disrupted that even brief conversation is not possible.

G12. **Lack of judgement and insight**. Impaired awareness or understanding of one's own psychiatric condition and life situation. This is evidenced by failure to recognize past or present psychiatric illness or symptoms, denial of need for psychiatric hospitalisation or treatment, decisions characterized by poor anticipation of consequences, and unrealistic short-term and long-range planning. Basis for rating: thought content expressed during the interview.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Recognizes having a psychiatric disorder but clearly underestimates it seriousness, the implications for treatment, or the importance of taking measures to avoid relapse. Future planning may be poorly conceived.

4. **Moderate** - Patient shows only a vague or shallow recognition of illness. There may be fluctuations in acknowledgement of being ill or little awareness of major symptoms which are present, such as delusions, disorganized thinking, suspiciousness, and social withdrawal. the patient may rationalize the need for treatment in terms of its relieving lesser symptoms, such as anxiety, tension, and sleep difficulty.

5. **Moderate severe** - Acknowledges past but not present psychiatric disorder. If challenged, the patient may concede the presence of some unrelated or insignificant symptoms, which tend to be explained away by gross misinterpretation or delusional thinking. The need for psychiatric treatment similarly goes unrecognised.

6. **Severe** - Patient denies ever having had a psychiatric disorder. He disavows the presence of any psychiatric symptoms in the past or present and, though complaint, denies the need for treatment and hsopialization.

7. **Extreme** - Emphatic denial of past and present psychiatric illness. Current hospitalization and treatment are given a delusional interpretation (e.g. as punishment for misdeeds, as persecution by tormentors, etc.) and the patient may thus refuse to co-operate with therapists, medication or other aspects of treatment.

G13. **Disturbance of volition**. Disturbance in the wilful initiation, sustenance, and control of one's thoughts, behaviour, movements, and speech. Basis for rating: thought content and behaviour manifested in the course of interview.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - There is evidence of some indecisiveness in conversation and thinking, which may impede verbal and cognitive processes to a minor extent.

4. **Moderate** - Patient is often ambilivent and shows clear difficulty in reaching decisions. Conversation may be marred by alternation in thinking, and in consequence verbal and cognitive functioning are clearly impaired.

5. **Moderate severe** - Disturbance of volition interferes in thinking as well as behaviour. Patient shows pronounced indecision that impedes the initiation and continuation of social and motor activities, which also may be evidenced in halting speech.

6. **Severe** - Disturbance of volition interferes in the execution of simple, automatic motor functions, such as dressing and grooming, and markedly affects speech.

7. **Extreme** - Almost complete failure of volition is manifested by gross inhibition of movement and speech, resulting in immobility and/or mutism.

G14. **Poor impulse control**. Disordered regulation and control of action on inner urges, resulting in sudden, unmodulated arbitrary, or misdirected discharge of tension and emotions without concern about consequences. Basis for rating: behaviour during the course of interview and reported by primary care workers or family.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Patient tends to be easily angered and frustrated when facing stress or denied gratification but rarely acts on impulse.

4. **Moderate** - Patient gets angered and verbally abusive with minimal provocation. May be occasionally threatening, destructive, or have one or two episodes involving physical confrontation or a minor brawl.

5. **Moderate severe** - Patient exhibits repeated impulsive episodes involving verbal abuse, destruction of property, or physical threats. There may be one or two episodes involving serious assault, for which the patient requires isolation, physical restraint, or p.r.n. sedation.

6. **Severe** - Patient frequently is impulsively aggressive, threatening, demanding, and destructive, without any apparent consideration of consequences. Shows assaultive behaviour and may also be sexually offensive and possibly respond behaviourally to hallucinatory commands.

7. **Extreme** - Patient exhibits homicidal attacks, sexual assaults, repeated brutality, or self-destructive behaviour. Requires constant direct supervision or external constraints because of inability to control dangerous impulses.

G15. **Preoccupation**. Absorption with internally generated thoughts and feelings and with autistic experiences to the detriment of reality orientation and adaptive behaviour. Basis for rating: interpersonal behaviour observed during the course of interview.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Excessive involvement with personal needs or problems, such that conversation veers back to egocentric themes and there is diminished concern exhibited towards others.

4. **Moderate** - Patient occasionally appears self-absorbed, as if daydreaming or involved with internal experiences, which interferes with communication to a minor extent.

5. **Moderate severe** - Patient often appears to be engaged in autistic experiences, as evidenced by behaviours that significantly intrude on social and communicational functions, such as the presence of a vacant stare, muttering or talking to oneself, or involvement with stereotyped motor patterns.

6. **Severe** - Marked preoccupation with autistic experiences, which seriously delimits concentration, ability to converse, and orientation to the milieu. The patient frequently may be observed smiling, laughing, muttering, talking, or shouting to himself.

7. **Extreme** - Gross absorption with autistic experiences, which profoundly affects all major realms of behaviour. The patient constantly may be responding verbally and behaviourally to hallucinations and show little awareness of other people or the external milieu.

G16. **Active social avoidance**. Diminished social involvement associated with unwarranted fear, hostility, or distrust. Basis for rating: reports of social functioning by primary care workers or family.

1. **Absent** - Definition does not apply.

2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits.

3. **Mild** - Patient seems ill at ease in the presence of others and prefers to spend time alone, although he participates in social functions when required.

4. **Moderate** - Patient begrudgingly attends all or most social activities but may need to be persuaded or may terminate prematurely on account of anxiety, suspiciousness, or hostility.

5. **Moderate severe** - Patient fearfully or angrily keeps away from many social interactions despite others' efforts to engage him. Tends to spend unstructured time along.

6. **Severe** - Patient participates in very few social activities because of fear, hostility, or distrust. When approached, the patient shows a strong tendency to break off interactions, and generally he tends to isolate himself from others.

7. **Extreme** - Patient cannot be engaged in social activities because of pronounced fears, hostility, or persecutory delusions. To the extent possible, he avoids all interactions and remains isolated from others.

Prototypic Questions for the PANSS Interview in Pursuing Major Areas of Psychopathology

1. Judgement and Insight

What brought you to the hospital (clinic, etc.)?

Are you in need of treatment? Medicine? Hospitalisation?

Is your hospitalisation a mistake? A punishment? Part of a scheme or plot?

Do you have a psychiatric disorder? Have you had one in the past?

What are the symptoms of your illness?

(If receiving chemotherapy:) Why are you taking medicine?

Are you ready to be discharged from the hospital (clinic, etc.)?

2. Hallucinations

Do you ever have strange experiences? Hear strange noises?

Do you sometimes hear things that others don't hear?

Do you sometimes receive personal communications from the radio or television? From God?

Can you sometimes hear your thoughts aloud inside your head? Do they sound like voices?

Do you sometimes hear voices inside your head? When How often? How clear are they? How loud are they?

Whose voices do you hear inside your head? How many are there? Do they speak to you, comment about you, or speak to each other?

What do the voices say? Are they good or bad voices? Are you afraid of them?

Do the voices tell you what to do? Give you direct orders?

Do you obey the voices' commands? Must you?

Do ordinary things ever appear strange or distorted?

Hallucinations (cont'd)

Do ordinary things ever appear strange or distorted?

Do you ever have "visions" or see things that others don't? How often? How clear are these visions?

Do the visions occur together with the voices or separately?

Do you ever smell things that other don't?

Do you get strange sensations from within your body or feel something strange inside you?

What do you make of these voices (visions, etc.)? How did they come about? Are they a problem for you?

3. Delusions (general)

When you are by yourself, what do you think about?

What are your convictions or beliefs about life?

Do you have a particular philosophy that you follow?

4. Ideas of suspicion and persecution

How do you get along with others?

Do you like people? Dislike people? Are you annoyed with people? Afraid of people? Why?

Do you prefer to be alone? Why?

Do you trust most people that you know? Are there some whom you distrust? Who? Why?

Do people sometimes talk about you behind your back? What do they say? Why?

Do some people harbour ill will toward you? Spy on you? Plot against you? Attempt to harm you? Attempt to kill you?

What is the evidence of this? Who is behind all this? Why does this happen?

5. Grandiosity

How do you compare to the average person? Better or worse?

Are you special in some ways?

Do you have talents or abilities that most people don't have?

Do you have ESP? Can you read another person's mind?

Do you have special or unusual powers?

Do you consider yourself wealthy? Famous? Have you ever appeared on television, radio, movies, or stage? Made records?

Do you rate higher than others in terms of your moral standards? Does this make you special in some respect?

Do you have a special mission in life? How did this come about?

Are you a religious person? What is your relationship with God? Are you closer to God than others are? Are you one of God's angels (children, emissaries, etc.)?

6. Guilt feelings

Do you feel less worthwhile than the average person?

Do you consider yourself a bad person in some ways?

Do you feel guilty about something you may have done in the past?

Have you done something to deserve punishment? What kind of punishment do you deserve?

Is your present situation (hospitalisation, illness, etc.) some kind of punishment? How do you know this?

Have you had thoughts of harming yourself as one kind of punishment? Have you ever acted on those thoughts?

7. Somatic concern

How have you been feeling?

Is there any problem with your physical health? With the way your body has been functioning?

Somatic concern (cont'd)

Do you have some medical illness or disease? If so, how serious is it?

How is your head? How is your heart?

Any trouble with your lungs? Arms? Legs? With any other part of your body?

Does your head or body ever feel strange?

Has your head or body changed in shape or size?

What is causing these problems?

8. Depression

What is your typical mood like?

Are you mostly happy? Sad? Why?

How unhappy have you been feeling?

When do you feel the saddest? How long do these feelings last?

Do you sometimes cry? How often?

Has your mood affected your appetite? Your sleep? Your ability to work?

Have you had any thoughts of harming yourself or ending your life? Have you attempted suicide?

9. Anxiety

Is anything worrying you?

Have you been feeling nervous? Tense?

Would you please hold your hands out straight (to inspect for tremor)

Now may I see your palms (to inspect for perspiration)?

Are you afraid of something? Of someone?

How anxious have you been feeling?

Do you ever get into a state of panic?

Have your worries or nervousness affected your appetite? Your sleep? Your ability to work?

10. Orientation

What day of the week is it? What is today's date (day, month, year)? What season are we in?

Where are we now located (city, state, district/burrough, and street address)?

What is the name of this hospital (clinic, etc.)? What ward (service, division etc.) are we on?

What are the names of the other hospital (clinic, etc.) staff members? What are the names of your friends at home?

Do you know the name of our Mayor (Town Supervisor, etc.)? Our Governor? Our President?

Appendix B

Brief Symptom Inventory

Appendix C

Personal Beliefs about Illness Questionnaire

Personal Beliefs About Illness Questionnaire (PBIQ)

Initials ..... ID code .....

Date .....

	Strongly Disagree	Disagree	Agree	Strongly Agree
I will always need to be cared for by professional medical staff				
My illness frightens me				
I am embarrassed by my illness				
I am capable of very little as a result of my illness				
Because of my illness I have to rely on psychiatric services.				
There must always have been something wrong with me to have caused my illness				
I find it difficult to cope with my current symptoms				
My illness is too delicate/brittle for me to work or keep a job				
I know when I'm relapsing but I can't do anything about it.....				
My illness is a judgement on me				
I am powerless to influence or control my illness.....				
I am fundamentally normal, my illness is like any other ...				
Society needs to keep people with my illness apart from everyone else.....				
There must be something about my personality that causes me to be what I am				
I can talk to most people about my illness				
There is something strange about me that causes my illness.				

Appendix D

Rosenberg Self Esteem Scale

Rosenberg Self Esteem Inventory

Initials ..... ID code ..... Date .....

This is a short questionnaire to measure thoughts about yourself. Please indicate whether you strongly agree, agree, disagree, or strongly disagree with each statement by ticking the appropriate box.

	Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**
On the whole I am satisfied with myself.				
At times I think I am no good at all.				
I feel I have a number of good qualities.				
I am able to do things as well as most other people.				
I feel I do not have much to be proud of.				
I certainly feel useless at times.				
I feel I am a person of worth, at least equal to others.				
I wish I could have more respect for myself.				
All in all, I am inclined to feel I am a failure.				
I take a positive attitude towards myself.				

Appendix E

Social Functioning Scale

SOCIAL FUNCTIONING SCALE (SFS)

Guidelines for use

The SFS is a reliable measure designed to assess the social functioning of individuals with Schizophrenia. The questionnaire should be completed with the person to whom it applies, and/or a relative or some one in everyday contact with that person. Preferably this should be separate to ensure privacy and unprompted replies. The administrator should be present to go through the items to ensure questions are understood and perhaps clarify any misunderstood items.

Name:..... Subject No:.....

SECTION	RAW SCORE	SCALED SCORE
Withdrawal/ social engagement		
Interpersonal communication		
Independence (performance)		
Independence (competence)		
Recreation		
Prosocial		
Employment/ occupation		

Investigators Signature:..... Date:.....

This questionnaire helps us learn how you have been getting on since you became ill.

This questionnaire takes about 20 minutes to complete - before starting could you please answer the following:

1. Where do you live?

   Answer:.....

2. Who do you live with?

   Answer:.....

SOCIAL ENGAGEMENT/ WITHDRAWAL

1. What time do you get up each day?

   Average weekday:.....

   Average weekend:.....

Before 9am	*-3*
9-11am	*-2*
11-1pm	*-1*
after 1pm	*-0*

2. How many hours do you spend alone?
   e.g. alone in a room
   walking out alone
   listening to radio or watching T.V. alone etc.

0-3	Very little time spent alone	3	
3-6	Some of the time	2	
6-9	Quite alot of the time	1	
9-12	A great deal of time	0	
12	Practically all the time		0

3. How often do you start a conversation at home?

Almost never	Rarely	Sometimes	Often
0	1	2	3

4. How often do you leave the house (for any reason)?

Almost never	Rarely	Sometimes	Often
0	1	2	3

5. How do you react to the presence of strangers?

Avoid them	Feel nervous	Accept them	Like them
0	1	2	3

INTERPERSONAL COMMUNICATION

1. How many friends do you have at the moment? .....
   (people you see regularly, do activities with etc.)

2. Do you have a boyfriend/ girlfriend? (if not married) Yes/ No
   3 0

Total of 1 and 2 0=0
1=1
2=2
3+=3

3. How often are you able to carry out a sensible or rational conversation?

Almost never	Rarely	Sometimes	Often
0	1	2	3

4. How easy or difficult do you find it talking to people at the moment?

Very easy	Quite easy	Average	Quite difficult	Very difficult
3	3	2	1	0

INDEPENDENCE- PERFORMANCE

please tick against each item to show how often you have done the following over the last three months.

ACTIVITY	NEVER 0	RARELY 1	SOMETIMES 2	OFTEN 3
Buying items from shops (without help)				
Washing pots, tidying up etc.				
Regular washing, bathing etc.				
Washing own clothes				
Looking for a job (if unemployed)				
Doing the food shopping				
Prepare and cook a meal				

Independence- performance continued

ACTIVITY	NEVER 0	RARELY 1	SOMETIMES 2	OFTEN 3
Leaving the house alone				
Using buses, trains etc				
Using money				
Budgeting				
Choosing and buying clothes for self				
Take care of personal appearance				

RECREATION

Please tick the appropriate column to indicate how often you have done any of the following activities over the last three months.

ACTIVITY	NEVER 0	RARELY 1	SOMETIMES 2	OFTEN 3
Playing musical instruments				
Sewing, knitting				
Gardening				
Reading				
Watching T.V.				
Listening to records radio				
Cooking				
DIY activities				

ACTIVITY	NEVER 0	RARELY 1	SOMETIMES 2	OFTEN 3
Fixing things (car, bike etc.)				
Walking/ rambling				
Driving/ cycling (as a recreation)				
Swimming				
Hobby (eg. collecting things)				
Shopping				
Artistic activity (painting, crafts etc)				

PROSOCIAL

Please tick the appropriate column to show how often you have participated in any of the following activities over the last three months.

ACTIVITY	NEVER 0	RARELY 1	SOMETIMES 2	OFTEN 3
Cinema				
Theatre/ concert				
Watching indoor sport				
Watching outdoor sport				
Art gallery/ museum				
Exhibition				
Visiting places of interest				
Meetings, talks etc				

Prosocial continued

ACTIVITY	NEVER 0	RARELY 1	SOMETIMES 2	OFTEN 3
Evening class				
Visiting relatives in their homes				
Being visited by relatives				
Visiting friends (including boy/ girlfriend)				
Parties				
Formal occasions				
Discos etc.				
Night-club/ social club				
Playing indoor sport				
Playing outdoor sport				
Club/ society				
Pub				
Eating out				
Church activity				

INDEPENDENCE- COMPETENCE

Please tick against each item how able you are at doing or using the following.

ACTIVITY	ADEQUATELY 3	NEEDS HELP 2	UNABLE 1	DK 0
Public transport				
Handling money				
Budgeting				
Cooking for self				
Weekly shopping				
Looking for a job				
Washing own clothes				
Personal hygiene				
Washing, tidying				
Purchasing from shops				
Leaving house alone				
Choosing/ buying clothes				
Caring for personal appearance				

OCCUPATION / EMPLOYMENT

Are you in regular employment? YES/ NO
(This includes industrial therapy, rehabilitation, or retraining courses)

1. IF YES What sort of job?.....

How many hours each week?.....

How long have you had this job?.....

2. IF NO When were you last in employment?.....

What sort of job was this?.....

How many hours per week?.....

3. Are you registered disabled YES/ NO

4. Do you attend a hospital as a day patient? YES/ NO

5. Do you think you are capable of some sort of employment?

Definitely Yes	Would have difficulty	Definitely no
3	2	0

6. How often do you make attempts to find a new job?
(e.g. go to job centre, look in newspaper)

Almost never	Rarely	Sometimes	Often
0	1	2	3

Score 10- Full-time gainful earnings or full time student
Score 9- Part-time gainful earnings or housewife/ mother
Score 8- Employed until recently e.g. in last six months, and pursuing work
Score 7- Industrial therapy and /or rehabilitation

If none of the above add together scales for scores on items 5 an 6.