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Safety Behaviours in Persecutory Delusions

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Kim V. Jolliffe MSc BSc (Hons)

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School of Psychology
Faculty of Medicine Health and Life Sciences

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General Abstract

Persecutory delusions refer to believing one is being 'tormented, followed, tricked, spied on or subjected to ridicule' (Diagnostics and Statistics Manual (4th Edition), p. 275, American Psychiatric Association, 1994). Strauss (1969) first suggested viewing persecutory delusions on a continuum with normal functioning and this initiated psychological explanations, starting with the theory that delusions resulted from applying normal cognitive mechanisms to explain anomalous experiences (Maher, 1974; 1988). The literature review considers cognitive models of the last 20 years which provide a range of explanations for the formation and maintenance of persecutory delusions. Models include theories of disrupted reasoning styles, attributional biases and disturbances in metacognitive processes. More recently, researchers have drawn directly from the literature base on emotions. The most recent model being by Freeman, Garety, Kuipers, Fowler, and Bebbington (2002) which is multi-factorial and incorporates a number of ideas from other theories. The authors propose that anxiety plays a central role in persecutory delusions and suggest that they are maintained through the use of safety behaviours preventing disconfirmatory evidence being processes. The empirical paper reports a study which tested the hypothesis that individuals with persecutory delusions and individuals with anxiety disorders use safety behaviours in a similar fashion. The findings supported those of Freeman, Garety, and Kuipers (2001). However, the evidence remains insufficient and the final recommendation is that applying knowledge of anxiety disorders to persecutory delusions should be approached cautiously.

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Literature Review*

Cognitive Models of Persecutory Delusions: A Review of the Literature

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Kim V. Jolliffe

Correspondence regarding this article should be addressed to
Kim Jolliffe, Doctoral Programme in Clinical Psychology, Shackleton Building (44),
University of Southampton, Highfield, Southampton, SO17 1BJ

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Abstract

In the past 20 years psychological models of psychosis have flourished. This paper reviews the cognitive models of persecutory delusions. These can be separated into models that conceptualise persecutory delusions as resulting from anomalous perceptual experiences and models that conceptualise persecutory delusions as resulting from disruptions in cognitive mechanisms. More recent models have posited a central role for affect and have begun to draw from this literature base. Freeman, Garety, Kuipers, Fowler, and Bebbington (2002) proposed a multifactorial model incorporating elements of previous theories in which they viewed persecutory delusions as resulting from a variety of routes. Freeman et al.'s, (2002) model asserts a central role for anxiety in their formation and maintenance. This review provides a critique of the models and makes suggestions for future research.

Key words: Psychosis, Persecutory Delusions, Anxiety, Cognition

Introduction

The symptoms of psychosis have traditionally been regarded as the more severe signs of mental illness. They include 'delusions, hallucinations, disorganized speech and grossly disorganized or catatonic behavior' (Diagnostic and Statistics annual [4th Ed.] '*DSM-IV*', p. 315, American Psychiatric Association, 'APA', 1994). Persecutory delusions are one of the most common symptoms of psychosis and are the symptoms that individuals are most likely to act upon (Freeman et al., 2003). As a result, persecutory delusions are highly predictive of hospital admission (Wessely et al., 1993). This paper provides a review of cognitive models that describe the formation and maintenance of persecutory delusions. The terms 'persecutory' and 'paranoid' are frequently used interchangeably in the literature. However, in this review, the term 'persecutory delusions' will be adopted, except where authors have coined specific terms, such as, 'poor me', 'bad me' paranoia (Trower & Chadwick, 1995). The review will begin with a brief account of the background to the area and will include a discussion of the evolution of psychology's contribution to the academic literature.

Background

The majority of the literature on persecutory delusions reviewed in this paper has appeared in the last 20 years. In the preceding years, psychology contributed little to the research, primarily because the clear diagnostic distinction between psychosis and neurosis meant that psychiatric disorders were seen as the province of psychiatry. Essentially, this was due to the traditional belief that the neuroses were of psychological

aetiology and thus potentially malleable whereas psychoses were of organic aetiology and thus untreatable psychologically (Jaspers, 1963). Individuals who experience the symptoms of psychosis have been described as having 'lost touch with reality' and having 'disturbances in thoughts and emotions which are not open to evaluation or change' (Stratton & Hayes, 1993, p.155). However, evidence that delusions and hallucination occur in non-clinical populations led to the development of the view that these symptoms exist on a continuum with normal functioning (e.g. Strauss, 1969; Claridge, 1987). For example, studies into sleep deprivation (Oswald, 1974) and sensory deprivation (Vernon, 1963; Grassian, 1983) can induce the symptoms of psychosis. In addition, substances, such as LSD, can induce symptoms and, at times of high fever, individuals frequently report hallucinatory experiences and increased levels of paranoia that result from temporary chemical changes in the brain (Kingdon & Turkington, 1994).

Further support for a continuum theory of the symptoms of psychosis comes from prevalence rates of between 10% and 57% in the general population. For example, Slade and Bentall (1988) noted that 10-25% of the general population reported experiencing at least one hallucination at some point in their lives. A number of studies have consistently found that around 39% of college students reported experiencing similar phenomena (e.g. Posey & Losch, 1984; Barrett & Etheridge, 1994). Verdoux et al., (1998) found that 25.5% of individuals in France, with no psychiatric history, endorsed items examining delusional ideas. Using the Peters et al. Delusions Inventory (PDI – Peters, Joseph, & Garety, 1999), the authors found that 57% of non-clinical respondents' believed that other people dropped special hints about them or had said

things with a double meaning and 32% of participants believed that everyone had gossiped about them (Peters, Joseph, & Garety, 1999). Thus, there is a growing consensus among researchers in support of the view that the symptoms of psychosis lie on a continuum with normal functioning (e.g. Claridge, 1987; Garety & Hemsley, 1994). More recently, Morrison (2001) has suggested that psychotic symptoms represent normal intrusions into awareness. Despite current psychological views of delusions being on a continuum with normal beliefs, there is still strong emphasis on a categorical classification of symptoms. This is partly due to tradition but also because of the conceptualisation of schizophrenia as a syndrome, of which persecutory delusions are a key symptom. The next section will consider definitions and briefly introduce the debate on the syndrome schizophrenia.

Definitions of Delusions

There is a wide literature base attempting to define delusions and the larger part has arisen due to the DSM classification being insubstantial. The following is the definitions of delusions extracted from *DSM-III-R*:

> 'A false personal belief based on incorrect inference about external reality and firmly sustained in spite of what everyone else believes and in spite of what constitutes incontrovertible and obvious proof or evidence to the contrary. The belief is not one ordinarily accepted by other members of the person's culture.' (*DSM-III-R*, p. 187, APA, 1987);

and, the more recent revised definition according to *DSM-IV*:

> 'Delusions are erroneous beliefs that usually involve a misinterpretation of perceptions or experiences..... The distinction between a delusion and a strongly held idea is sometimes difficult to make and depends on the degree of conviction with which the belief is held despite clear contradictory evidence.' (*DSM IV*, p. 315).

The *DSM-III-R* description has been criticised on both empirical and conceptual grounds. For example, Bentall, Kinderman, and Kaney (1994) highlighted the difficulty in establishing whether a belief is false or an inference is incorrect. The notion that the belief is 'firmly sustained' has also been discredited through studies that have demonstrated that conviction can be weakened through cognitive-behavioural therapy ('CBT', e.g. Chadwick & Lowe, 1990; Chadwick & Birchwood, 1994; Kingdon & Turkington, 1994). The idea that the belief is not one that is ordinarily accepted is also tenuous, as the bizarreness of delusions is difficult to rate (Kendler, Glazer, & Morgenstern, 1983). While the definition in *DSM-IV* is less rigid and addresses the majority of these criticisms, degree of conviction is cited as a demarcation of a delusion. However, conviction is known to fluctuate between times of absolute certainty and times when the ideas are recognised as unfeasible (Garety, 1985). These arguments support a continuum view of delusions and have led researchers to suggest alternative and more comprehensive definitions, one of the more influential being Oltmanns (1988).

Oltmanns (1988) suggested defining delusions by drawing on seven characteristics, none of which may be necessary or sufficient: (a) on balance others view the belief as completely incredible; (b) the belief is not shared by others; (c) the belief is

held with firm conviction and unresponsive to contradictory evidence; (d) pre-occupation with the belief; (e) the belief involves personal reference (e.g. not merely an unconventional religious or political belief); (f) the belief causes subjective distress or interference; and (g) no attempt is made to resist the belief. Chadwick, Birchwood, and Trower (1996) suggested that Oltmanns' approach is more useful than the traditional psychiatric definition embodied in DSM because it can accommodate individual differences. However, Oltmanns' (1988) characteristics of delusions do not help to distinguish them from other strongly held beliefs.

A further difficulty in investigating persecutory delusions is that they occur in a number of syndromes, for example, bipolar disorder, schizoaffective disorder, and delusional disorder (Davison & Neale, 2001). However, the most common diagnosis associated with persecutory delusions is schizophrenia. As a result, the majority of the research discussed in this review has been conducted with individuals with a primary diagnosis of schizophrenia who experience persecutory delusions. Bentall (1990) argued that the term 'schizophrenia' should be abandoned due to its lack of scientific rigour. Individuals meet the inclusion criteria for schizophrenia through experiencing two of a number of symptoms, meaning two individuals may have the same label and their symptoms bear no resemblance. Thus, prognosis of course and outcome varies widely and cannot be predicted. The label schizophrenia does not increase explanatory power in considering its aetiology (Bentall, 1990), nor does it prescribe treatment approaches or predict their efficacy. Bentall (1990) suggested that symptoms rather than a syndrome should be the focus of research and his approach was central in paving the way for

psychological explanations. Since that time, cognitive approaches have flourished in an attempt to explain key symptoms of schizophrenia, particularly delusions and hallucinations.

Cognitive Models of Persecutory Delusions

This section of the review focuses on the main psychological models which propose cognitive explanations applicable to the formation of persecutory delusions and the factors involved in their maintenance. The cognitive models discussed can be divided into three categories: those based on cognitive processes; models that emphasise metacognitive processes; and models that give a central place to the role of affect. The review will conclude by examining a multi-factorial model which encompasses many of the features of the cognitive models presented (Freeman, Garety, Kuipers, Fowler, & Bebbington, 2002).

Cognitive Processes

Despite the fact that Kraeplin (1919) was one of the first to suggest that delusions resulted from attempts to make sense of unusual experiences, it was Maher (1974; 1988) who initiated a renewed interest in research into delusions and provided the foundations on which contemporary research is based. Maher (1974; 1988) believed that normal cognitive mechanisms were involved in the formation of delusions but that individuals who developed delusions were biologically predisposed to experiencing unusual percepts. For example, individuals might experience an increased vividness of colours or an inability to attend to foreground information owing to the increased

prominence of background information. Following such an experience, individuals seek an explanation using the same reasoning skills to make sense of the perception as other people. Applying normal reasoning, thus leads the person to arrive at a plausible explanation but one which others would view as delusional. Maher's (1974; 1988) theory proposed that delusional beliefs are then maintained in the same way as many other strong beliefs, that is they are reinforced through the reduction in anxiety that results from finding an explanation for the experience. Evolutionary theory predicts that individuals need to make sense of their worlds in order to reduce anxiety (Gilbert, 1998). Maher reported clinical case studies in support of his argument (e.g. Maher & Ross, 1984; Johnson, Ross, & Mastria, 1977). He also cited Williams' (1964) study, which found that individuals who experienced delusions had normal reasoning styles.

Maher's (1974; 1988) basic premise, that individuals who experience delusions have intact cognitive reasoning skills, has not been consistently supported. In fact, individuals with persecutory delusions often demonstrate cognitive biases in attribution style and probabilistic reasoning tasks. For example, Hemsley and Garety (1986) argued that individuals who experienced delusions demonstrated a 'jump to conclusion' reasoning style. Based on limited information, they are likely to reach a decision quicker than other people. They suggested that individuals suffering from delusions have a deficit in their ability to weigh up new evidence and adjust their beliefs accordingly. Slade and Bentall (1988) also showed that individuals with delusions had more difficulty than non-clinical people discriminating between imagined events (self-generated) and those which were attributable to external sources, suggesting biased cognitive processing

in 'reality discrimination' tasks. A further shortcoming of Maher's model was its failure to take account of delusions which occurred in the absence of perceptual abnormalities and anomalous experiences that did not lead to delusional beliefs (Chapman & Chapman, 1988).

As a result of Maher's theory, much of the research that followed investigated either the 'anomalous experience' hypothesis or a 'flawed cognitive mechanism' theory. The next section focuses on literature that demonstrates cognitive processing biases in individuals who experience delusions.

Reasoning Styles

Garety (1991) disputed Maher's theory that individuals who experienced delusions used normal cognitive processes to make sense of their experiences. She suggested that judgement processes might be central to the formation of delusions because individuals with persecutory delusions have been shown to make rapid and over-confident judgements (Huq, Garety, & Hemsley, 1988). Garety (1991) and Garety and Hemsley (1994) speculated that individuals who experienced delusions would demonstrate a 'jump to conclusions' reasoning style. That is, they would be quicker to make probabilistic judgements and more confident about their judgements on neutral tasks, than clinical and non-clinical control groups. Garety (1991) also questioned whether persecutory delusions might separate into sub-groups of different aetiologies. For example, although she hypothesised that reasoning biases would be implicated in the

formation of some delusions, she suggested that not all individuals who shared similar experiences would develop delusional beliefs.

To test her hypothesis, Garety (1991) employed an experimental paradigm using the Bayesian framework of probabilistic inference (Bayes, 1958). This involves a reasoning task in which participants draw a coloured bead from one of two jars that contain beads of two colours. The study used a ratio of 85:15 split between two colours in one jar and the opposite split in a second jar. Beads were drawn from the jars out of view of the participants and their task was to determine from which jar each bead was drawn. There were two conditions, 'draws to decision' and 'probability estimates'. In the first condition, draws to decision, beads were drawn until the participant decided from which jar the beads were being drawn. In the probability estimates condition, there were a fixed number of trials and participants were required to estimate at each stage the probability of one container having been chosen. In support of her hypothesis, Garety (1991) found that individuals with a delusional diagnosis requested fewer items of information before making a decision and expressed higher levels of certainty than a clinical control and non-clinical control group. A number of studies have replicated and supported these findings (e.g. Garety, Hemsley, & Wessely, 1991; Dudley, John, Young, & Over, 1997). In addition, Garety et al., (1991) showed individuals with persecutory delusions were quicker to change their hypothesis in the light of contradictory information. This finding suggests that the observation that delusions are fixed beliefs cannot be accounted for by reasoning abnormalities but are akin to strongly held beliefs found in the general population.

In interpreting these findings, Garety and Hemsley (1994) did not completely reject Maher's theory. Instead, they argued that where no perceptual abnormality existed, judgements and methods of information processing might lead to the formation of a delusion. Garety and Hemsley (1994) suggested that a number of factors were involved in the formation and maintenance of delusions, such as prior experiences, current information, information processing style, and reinforcement. Of interest, and something to which we will return later, was the finding that no significant difference was found between the performance of an anxious control group and a delusional disorder group (Garety, 1991).

Maher (1992) questioned Garety's (1991) and Garety and Hemsley's (1994) suggestion that some individuals with persecutory delusions reached their conclusions based on too little information. He suggested that these individuals were in fact better at Bayesian reasoning than the control groups. For example, there was a 97% probability that two consecutive beads of the dominant colour would be drawn from the jar. Thus, individuals in the control groups who took longer to come to their conclusions were exceptionally cautious in reaching their decisions. Therefore, Maher (1992) said Garety's (1991) findings were not indicative of a jumping to conclusions reasoning style. In addition, some studies have failed to replicate Garety's (1991) findings. For example, Young and Bentall (1997) compared 16 individuals suffering from persecutory delusions with 16 matched depressed and non-clinical controls. Their results did not support a 'jump to conclusions' reasoning style. Both groups made decisions and changed decisions based on the directions predicted by normal reasoning theory.

The evidence for abnormal reasoning styles in individuals with delusions is contradictory and, more recently, Garety and Freeman (1999) have suggested that there is a bias in data gathering rather than in the estimation of probabilities. Individuals with persecutory delusions gather less information before accepting a hypothesis than non-clinical control participants (John & Dodgson, 1994; Linney, Peters, & Ayton, 1998).

Following the review of a series of studies into reasoning styles, Garety and Hemsley (1994) presented a preliminary model of the formation and maintenance of delusions. They suggested that past experience, affect, self-esteem and motivation contributed to the formation of some delusions. However, in other delusions, biases in perception and judgement may be more prominent. They also suggested selective attention and confirmation bias may sometimes have a role. The crux of their argument was that delusions were unlikely to share a common aetiology but were formed and maintained due to a number of factors.

In addition to abnormal reasoning styles, there is a substantial body of evidence which suggests cognitive biases in the way that individuals with persecutory delusions make attributions which will be reviewed next.

Attributional Biases

This section will consider attribution styles in individuals who experience persecutory delusions. Bentall and colleagues suggested that the formation and maintenance of persecutory delusions were due to an association between self-serving attributional biases, social attributional biases, and threat-related biases (Kaney &

Bentall, 1989; Bentall, Kaney, & Dewey, 1991; Bentall & Kaney 1989). Models of attribution are concerned with how individuals make judgements about the internal and external causes of events. According to social attribution theory, a self-serving attributional bias is the 'norm' in the general population (Kelley, 1967). As a protection against low self-esteem, individuals tend to externalise negative events, that is they blame something or someone else for bad things. Conversely, individuals tend to internalise positive events, that is they take the credit for good things. The exception is individuals suffering from clinical depression who demonstrate the opposite pattern (Abramson, Seligman, & Teasdale, 1978).

Kaney and Bentall (1989) hypothesised that individuals who experienced persecutory delusions showed an exaggeration of this self-serving attribution style. They compared attribution styles in people with persecutory delusions and a depressed clinical control group. They used the Attributional Style Questionnaire ('ASQ', Peterson et al., 1982) and asked participants to describe either a negative or a positive event (e.g. losing their job or getting a pay rise). Participants then rated the self-generated cause for the event on three dimensions – internality, stability, and globalness. Both groups made global and stable attributions for significant events. However, the persecutory delusion group made excessive external attributions for negatively valued events and excessive internal attributions for positively valued events. These findings led Kaney and Bentall (1989) to speculate that individuals with persecutory delusions failed to use appropriate information when makings sense of social interactions.

In a follow-up study, Bentall et al., (1991) investigated social reasoning in individuals with persecutory delusions, a clinical and a non-clinical control group. They were interested in whether the three groups drew from the same types of information and made attributions in the same way. According to the theory individuals in the general population use distinctiveness, consensus and consistency (DCC) to interpret the actions of others (Kelley, 1967). The theory predicts that in the event that DCC is high, should an individual witness someone hit another person, in trying to make sense of what has happened, he or she is most likely to attribute the action to the person being hit. An example of this might be if the person hitting the other person does not generally hit people (distinctive), the person hitting has hit that particular person before (consistent), and other people frequently hit that person (consensus). In the event of low DCC, the theory predicts that attribution will be made to the person who is doing the hitting (e.g. Hewstone & Jaspars, 1983; McArthur, 1972). Bentall et al.'s, (1991) study used vignettes and asked participants to make judgements about social interactions in which they were not involved. Interestingly, Bentall et al., (1991) found that individuals with persecutory delusions consistently made more person attributions than both clinical and non-clinical control participants. Bentall et al., (1991) concluded that in addition to individuals with persecutory delusions being less likely to attribute negative events internally (Kaney & Bentall, 1989), they were also less likely to attribute negative events to people whom they perceived as victims, than clinical and non-clinical control groups. However, Bentall et al., (1991) found that all three groups drew on the same types of information in making their decisions, despite reaching different conclusions. That is, in making social judgements, all three groups used the same mental heuristics (i.e.

distinctiveness, consistency and consensus) as the normative model of attribution theory would predict (Kelley, 1967). In addition, Bentall et al., (1991) found that individuals with persecutory delusions were excessively confident about their social judgements compared to both clinical and non-clinical control groups, which supports Garety's (1991) findings. However, the depressed control group were excessively under-confident about their social judgements. Interestingly, these findings did partially support Maher's (1974; 1988) proposal that individuals with persecutory delusions use similar information as the general population to make sense of their worlds. Unlike Maher's (1974; 1988) theory, there was no evidence that delusions were perception-driven. In a subsequent experiment Kaney and Bentall (1992) manipulated the degree of control participants had over winning and losing outcomes on computer games. Kaney and Bentall (1992) found individuals with persecutory delusions, clinically depressed and non-clinical control groups, all used the same information when making attributions about winning and losing. However, the persecutory delusion group demonstrated an exaggerated self-serving bias. They were much more likely to attribute success internally and failure externally.

There is now robust evidence demonstrating support for the theory that individuals with persecutory delusions are more likely to attribute negative events to external causes (Kaney & Bentall, 1989; Candido & Romney, 1991; Kaney & Bentall, 1992; Lyon, Kaney, & Bentall, 1994; Fear, Sharp, & Healey, 1996; Sharp, Fear, & Healey, 1996). However, the evidence is less clear as to whether this group also shows a self-serving bias in taking credit for good events (Candido & Romney, 1991).

The third aspect to Bentall and colleagues' theory was to investigate whether individuals who experienced persecutory delusions demonstrated threat-related attentional biases (Bentall & Kaney, 1989), as found in other clinical groups. An example might be depressed patients who show enhanced recall for negative affect-laden material (Williams, Watts, MacLeod, & Mathews, 1988). A similar bias exists in anxious (Mathews & MacLeod, 1986) and phobic individuals (Watts, McKenna, Sharrock, & Trezise, 1986), who have been found to demonstrate hypervigilance to threat-related stimuli. Bentall and Kaney (1989) investigated whether individuals with persecutory delusions showed such content-specific information processing biases. On a modified Stroop task, they found that individuals who experienced persecutory delusions showed an attentional bias toward threat-related words and demonstrated a preference for attending to, and recalling, threat-related information. For example, words such as 'spy' and 'whisper' were recalled more easily than neutral words such as 'diamond' and 'recipe' or depressive words such as 'sadly' and 'hopelessly'. Individuals with persecutory delusions were also found to recall more threatening propositions from a story than a clinically depressed control group (Kaney, Wolfenden, Dewey, & Bentall, 1992). Bentall (1994) argued that these studies provided evidence for a threat-related bias in individuals with persecutory delusions.

In summary, Bentall and colleagues propose self-serving attribution biases, social attribution biases and threat-related biases all interact in the development and maintenance of persecutory delusions (Kaney & Bentall, 1989; Bentall et al., 1991; Bentall & Kaney 1989). These findings, together with a 'jump to conclusions' reasoning

style (Garety, 1991; Garety & Hemsley 1994), suggest that cognitive factors play an important role in persecutory delusions. While there is clearly a relationship between cognitive processes and delusions, it is not clear whether the relationship is causal. Nevertheless, these findings do contradict one of the central premises of Maher's (1974; 1988) theory, namely that cognitive reasoning remains intact in individuals who experience delusions. Thus, while Maher's theory undoubtedly made a valuable contribution to the understanding of delusions and was hugely instrumental in sparking a renewed interest in research, there is a substantial body of evidence that has failed to support the notion that cognitive processes remain intact. That said, Garety (1991) and Garety and Hemsley (1994) did not totally reject the notion that some delusions might occur following anomalous experiences.

The finding that individuals with persecutory delusions showed an opposite pattern in the self-serving bias to the clinically depressed participants led Bentall (1994) to speculate that the abnormal beliefs expressed in persecutory delusions served the function of protecting against low self-esteem. He suggested that persecutory delusions might be the result of biases in information processing relating to the self-concept. He theorised that persecutory delusions resulted from the activation of self-ideal discrepancies by threat-related information triggering defensive explanatory biases. The following section will discuss this theory.

Persecutory Delusions as a Defence Mechanism

Bentall (1994) and Bentall et al., (1994) proposed a model of persecutory delusions that integrated cognitive and psychodynamic processes. Their model suggested that persecutory delusions are the result of a defence against low self-esteem. Attribution theory predicts that self-esteem is maintained through individuals showing a bias towards attributing negative events externally and positive events internally (Kelley, 1967). Bentall (1994) suggested that individuals with persecutory delusions show an exaggeration of this normal bias in order to defend against low self-esteem. His ideas drew from Higgins' (1987) model of the self-concept. Central to the model's framework are the interactions and discrepancies between domains of the self of which there are three: 'actual-self'; 'ideal-self'; and 'ought-self'. Higgins suggested that low self-esteem usually developed in response to a negative actual self-concept or when there was a discrepancy between the actual-self and ideal-self. Bentall et al., (1994) suggested that the exaggerated self-serving attributional bias in individuals with persecutory delusions functioned to reduce the discrepancy between actual and ideal self. Thus, persecutory delusions are driven by a need to avoid conscious negative self-referent thoughts (Bentall, 1994). According to the theory, the self-serving attributional bias reduces awareness of discrepancies between actual and ideal-self, resulting in a positive explicit self-concept. Thus, persecutory delusions are formed in order to make external causal attributions for negative events that would otherwise lead to negative self-representation if internal attributions were made. This idea was not entirely new. For example, Colby (1975) conducted a computer simulation task to demonstrate a similar defence in

individuals with persecutory delusions and Ziegler and Glick (1988) suggested that paranoia might be a camouflaged depression.

The defence against low self-esteem model makes two testable predictions. Individuals with persecutory delusions should demonstrate both elevated levels of depression and high levels of self-esteem. In addition, there should be a discrepancy between overt and covert measures of self-esteem. Lyon, Kaney, and Bentall (1994) tested the hypothesis that individuals with persecutory delusions would show an exaggerated self-serving attributional bias on overt measures of self esteem which would be significantly higher than the depressed control group. However, Lyon et al., (1994) hypothesised that the two clinical groups would perform similarly on covert measure of self-esteem.

First, Lyon et al., (1994) replicated Kaney and Bentall's (1989) findings of an exaggerated self-serving bias. They used the ASQ to demonstrate different scores between the two clinical groups. Second, they administered the Pragmatic Inference Task (PIT – Winters & Neale, 1985) to measure attributional inferences based on an apparent memory test. The test involved presenting 12 short vignettes that were self-referent. Six described positive events and six described negative events. Each of the vignettes had an internal and external causal attribution implied in the story. Participants read the stories and were asked four questions. Two of the questions measured recall, one question asked participants to make a non-attributional inference, and the final question asked participants to identify the main contributory factor to the event. The PIT measures covert self-esteem and requires implicit explanatory judgements (Winters &

Neale, 1985). Both individuals with persecutory delusions and depressed participants made internal attributions (i.e. they blamed themselves for negative outcomes). Thus, while the two clinical groups differed on the ASQ, their performance was similar on the PIT. These findings provided support for Bentall's (1994) theory that persecutory delusions function as a defence against feelings of low self-esteem (Lyon et al., 1994). However, at the time, there was no validity and reliability data on the PIT and it is possible that the absence of a self-serving bias was due to methodological limitations of the study.

While Bentall's (1994) model is interesting and may have plausible face validity, many studies have failed to support its predictions. For example, a number of studies have failed to find the predicted increase in depression and decrease in self esteem following a reduction in belief in persecutory delusions (Chadwick & Lowe, 1990; Chadwick & Lowe, 1994; Freeman et al, 1998). In fact, Chadwick and Lowe (1994) found the opposite, that is a relationship between a reduction in depression with the weakening of delusional beliefs. Bowins and Sturgar (1988) found a negative correlation between self-esteem and self-diminishing persecutory delusions. Thus, the more self-diminishing a persecutory delusion, the lower the self-esteem. In a comprehensive review of experiments investigating this hypothesis, Garety and Freeman (1999) found mixed results. While some studies did find normal or high levels of self-esteem in individuals who experienced persecutory delusions, this appeared to depend on levels of depression (e.g. Candido & Romney, 1991). Garety and Freeman (1999) concluded that self-esteem and depression were negatively correlated as predicted in regular emotional

processing, that is elevated levels of depression are typically associated with a decrease in self esteem (e.g. Candido & Romney, 1991; Freeman et al., 1998; Lyon et al., 1994). In addition, there has been difficulty in applying this theory clinically.

According to the defence against low self-esteem hypothesis, clinical studies should demonstrate a reduction in self-esteem as persecutory delusions reduce. Chadwick and colleagues have been hugely influential in developing cognitive-behavioural treatment packages with individuals who experience persecutory delusions. In their 1990 study, Chadwick and Lowe reported that five out of six clients improved following an intervention designed to challenge delusional beliefs across four phases of treatment. Using the Symptom Checklist (Wing, Cooper, & Sartorius, 1974) and the Beck Depression Inventory (Beck, 1967), they found a reduction in overall psychiatric disturbance. There was no increase in depression or decrease in self-esteem when delusional beliefs weakened. Of interest was a reduction in anxiety for almost all participants which appeared to correlate with reduction in belief conviction. This finding will be discussed further when Freeman et al.'s, (2002) multi-factorial model is presented.

More recently, Kinderman and Bentall (1997) and Young and Bentall (1997) have shown that individuals with persecutory delusions have a tendency to blame other people when things go wrong, as opposed to a general externalising bias. They suggested that attributional biases may only be demonstrated in self-referent tasks and the original model has been adapted to accommodate this (Bentall, Corcoran, Howard, Blackwood, & Kinderman, 2001).

Bentall's (1994) model offers one possible account of the maintenance of persecutory delusions, although the theory is unclear as to the role of cognitive biases in their formation. Some of the studies designed to evaluate the theory are complex to interpret and use methods which lack validity (e.g. Lyon et al., 1994). In addition, some of the results that Bentall cites as evidence for his theory are ambiguous. For example, the theory predicts that all individuals who experienced persecutory delusions would show elevated scores on depression and apparently high scores on self-esteem on psychometric tests. Candido and Romney (1991) tested this hypothesis using the ASQ with individuals who experienced persecutory delusions, 15 of whom were comorbidly depressed and 15 of whom were not. They found that individuals with persecutory delusions and without comorbid depression showed the same attribution bias for negative events as the persecutory delusion groups reported by Bentall and colleagues' studies (e.g. Kaney & Bentall, 1989). The individuals with persecutory delusions and comorbid depression showed an exaggerated self-serving bias for bad events but not for good events. Bentall's (1994) theory takes no account of overtly depressed and non-depressed sub-groups of individuals with persecutory delusions.

There remains a number of unanswered questions about the defence hypothesis and how persecutory delusions have arisen (Bentall, 1994): are they the result of anomalous perceptions; and/or are they due to disrupted neurological pathways? Could personality style offer an explanation and what role does social and family history play? Bentall (1994) has himself speculated, without elaboration, about a number of factors that may be implicated, such as social history, family environment and anomalous

perceptual experiences. Furthermore, it is not clear whether Bentall regards all persecutory delusions as a defence against low self-esteem. Thus, research evidence is inconclusive and clinical data has not supported Bentall's (1994) model of persecutory delusions functioning as a defence against low self-esteem. Nevertheless, Trower and Chadwick (1995) proposed a model which partially supports Bentall's (1994) theory.

A Theory of Two Types of Paranoia

Trower and Chadwick (1995) have presented convincing arguments for the existence of two types of paranoia which they term 'poor me' and 'bad me'. Their theory is based on a normal model of 'self' and is concerned with how a person evaluates the self and others (Zajonc, 1980). A person evaluation may be attributed in three ways: (a) other to self (i.e. where I infer that another person is making an evaluation of me); (b) self to self (i.e. where I evaluate myself); and (c) self to other (i.e. where I evaluate another person). The construction of the self involves an objective self, a subjective self, and a conceptualisation of other people. Trower and Chadwick (1995) argue that threats to the self are caused through not being able to adequately achieve and integrate these three conditions. In individuals with persecutory delusions, Trower and Chadwick (1995) suggest construction of the self is threatened in two main ways and is defended against in two ways. Firstly, if one cannot achieve an 'objective self' (i.e. be able to evaluate his or herself) this will lead to an 'insecure self'. Secondly, if the 'other' (i.e. inferences about another person's evaluation of him or her) is too present, even when an objective self is achieved, the other will be imposing and lead to an 'alienated self'. They have argued that these faulty constructs of self predict two types of paranoia,

that is insecure self will lead to 'poor me' paranoia and alienated self to 'bad me' paranoia.

Individuals categorised as poor me make negative self-to-other evaluations (e.g. "you are no good"). These individuals see themselves as victims and show a tendency to blame others for their misfortunes. Trower and Chadwick (1995) suggest that poor me paranoia masks low self-esteem as identified by Bentall, et al., (1994) and is the most common presentation in clinical settings. However, those individuals who experience bad me paranoia make negative other-to-self evaluations (e.g. "others think I'm no good"), which lead to negative self-to-self evaluations and thus see themselves as deserving of punishment (e.g. concluding "I am no good and so deserve bad things to happen"). Trower and Chadwick argued that neither Zigler and Glick's (1988), nor Bentall et al.'s, (1994) theories account for the bad me paranoia group.

Trower and Chadwick (1995) drew from diverse evidence to develop their theory (for a full review see Trower & Chadwick, 1995). In their own studies, they compared clinically depressed and persecutory delusion groups and found evidence of two types of paranoia (Chadwick & Trower, 1997). Both groups perceived similar degrees of threat but the depressed group condemned themselves, whereas the majority of individuals in the paranoid group condemned other people. This was not necessarily true for three out of the eleven participants in the paranoid group, who performed more like the depressed group, that is they did not condemn others and their self-esteem was low.

It is interesting to consider these findings alongside those of Bentall and colleagues (e.g. Bentall, Kinderman, & Kaney, 1994). Taken together, they might predict that individuals with bad me paranoia, who see themselves as deserving of punishment, would show an attributional bias in the same direction as the clinically depressed group. Those with poor me paranoia would be expected to show the self-serving attributional biases discussed by Bentall (1994). Bentall (1994) did not distinguish between poor me and bad me paranoia, but, Bentall and colleagues' results (e.g. Kaney & Bentall, 1989; Bentall et al., 1991; Bentall & Kaney 1989) may be explained owing to individuals with poor me paranoia being more prevalent in clinical settings (Trower & Chadwick, 1995). Thus, it is feasible that the series of studies conducted by Bentall and colleagues, by chance, recruited participants from the poor me sub-group.

While all of the models discussed in this section make a contribution to our understanding of persecutory delusions using normal psychological processes, they do not explicitly take account of the role of higher order cognitive processes, such as metacognitions. Metacognition refers to an individual's ability to monitor and control his or her own cognitive activity and to consider other people's cognitions (Stratton & Hayes, 1993, p. 115). The next section will review some of the literature that has considered the role of metacognitions in individuals with persecutory delusions.

Metacognitive Processes

Metacognitions refer to a number of higher order cognitive processes. For example, making interpretations of a thought (i.e. thinking about a thought) and representing the mental state of others (e.g. "Jack will think I am at home today"). This section will review two metacognitive models of persecutory delusions, which hypothesise that individuals with persecutory delusions have difficulties with these higher order cognitive tasks. The first model draws on the construct of Theory of Mind (Premack & Woodruff, 1978) and refers to the ability to make a calculated guess about another person's mental state. The second is a model proposed by Morrison (2001) that incorporates the Self-Regulatory Executive Function model (S-REF – Wells & Matthews, 1996) in which metacognitions have a central role.

Theory of Mind

Having a theory of mind (ToM) allows an individual to make a calculated guess about what might be going on in other people's minds, such as their thoughts, emotions, and desires (Perner, 1991). The theory suggests two orders of theory of mind exist. A first order theory of mind might be hypothesising about someone else's emotional state based on their facial expression. The second order theory of mind requires the individual to use metacognitive processes in order to understand what the other person is experiencing. The Sally-Anne experiment (Frith, 1989) is frequently replicated or adapted to demonstrate second order theory of mind. For example, an object is placed in front of a participant and a co-worker. The co-worker then leaves the room and the

object is moved. The participant is then asked where the co-worker will look for the object on return. Intact theory of mind predicts that the participant would answer that the co-worker would look in the original place as he or she would be unaware it had been moved.

The concept of ToM and the majority of evidence supporting it was derived from research into pervasive developmental disorders (i.e. Autism and Aspergers). Therefore, Frith (1992) predicted that whereas individuals with pervasive developmental disorders would never have developed the ability to 'mentalise', individuals who experienced persecutory delusions would have lost an ability that they once had. Thus, individuals with pervasive developmental disorders would fail to make inferences about another person's mental state and individuals with persecutory delusions would make incorrect inferences when judging the intentions of others (Frith, 1992).

A number of studies have found that individuals with persecutory delusions perform poorly on formal tests, such as the Sally-Anne experiment, that require ToM mentalising, (Frith, 1992; 1994; Corcoran, Mercer, & Frith, 1995; Frith & Corcoran, 1996). However, clinical control groups of individuals with other symptoms of schizophrenia did not perform poorly on mentalising tasks (Frith, 1992; 1994; Corcoran et al., 1995; Frith & Corcoran, 1996). These findings could not be accounted for by the use of medication. This led Frith to hypothesise that persecutory delusions resulted from specific difficulty in representing the mental state of other people, specifically other people's intentions. Corcoran, et al., (1995) also showed that individuals with persecutory delusions had difficulty in interpreting intentional speech (e.g. when

someone says, "it's cold in here" meaning "please close the window") which is a function of ToM.

Drury, Robinson, and Birchwood (1998) found some support for Frith's theory in the acute phase of a schizophrenic illness. However, there was no difference between individuals with persecutory delusions and those who exhibited other symptoms of schizophrenia. Neither was the difference evident between individuals with a diagnosis of schizophrenia and a non-clinical control group at recovery. Langdon et al., (1997) tested performance on ToM tasks and supported the theory that individuals with persecutory delusions had difficulties interpreting others' mental states. That said, there is a large body of evidence demonstrating that individuals with a diagnosis of schizophrenia exhibit more cognitive deficits generally (e.g. Langdon, Coltheart, Ward, & Catts, 2002). In addition, Langdon et al., (2002) found that all individuals with a diagnosis of schizophrenia demonstrate deficits on ToM tasks, not just those with persecutory delusions. More recently, Pickup and Frith (2001) said that individuals with schizophrenia generally demonstrate difficulties on ToM tasks but that this predominantly affects those with persecutory delusions.

A number of studies have failed to support a poor ToM in individuals with persecutory delusions (e.g. Mitcheley, Barber, Gray, Brooks, & Livingstone, 1998; Sarfati, Hardy-Baylé, Besche, & Waklöcher, 1997; Langdon et al., 1997). Indeed, Mitcheley et al., (1998) found ToM deficits correlated with the negative symptoms of schizophrenia but not with the positive symptoms. Frith and Corcoran's (1996) own study also confuses the picture. One of the comparison groups that they investigated

combined individuals who experienced both positive and negative symptoms of schizophrenia. These individuals exhibited symptoms such as poverty of speech, flattening of affect, incoherent speech and incongruity of affect. However, they did not experience persecutory delusions. This group performed similarly to the persecutory delusion group on all first and second order ToM tasks. There are other shortcomings with their study, as highlighted by Frith and Corcoran (1996). Sample sizes were small, there was a wide variance in IQ scores and the possibility of differing intellectual and memory functioning may have also confounded their findings. Despite these mixed findings, all the studies reported here found that performance on ToM tasks was weaker the more symptomatic the participant.

In summary, Frith (1992; 1994) argued that an inability to read the intentions of other people resulted in some individuals experiencing persecutory delusions. The evidence from a number of studies suggests this may in fact be a general feature of suffering the symptoms of enduring schizophrenia (Langdon et al., 2002; Pickup & Frith, 2001). Given that persecutory delusions are generally based on the individual's interpretation about what another person believes about him or herself, there are some obvious shortcomings with this theory. The ability to consider what another person thinks about something requires ToM. Therefore, perhaps an over-developed or malfunctioning ToM might be a more accurate way of explaining such presentations. It might be interesting to examine ToM in individuals with persecutory delusions using qualitative methodologies. This approach might help to identify which processes lead individuals to believe that such threatening beliefs are directed toward them. Regardless

of whether deficits in ToM are only evident in the acute phase of the illness or whether they are a feature of other symptoms of psychosis, the finding has important treatment implications. If an individual is unable to appreciate another person's mental state, then it is hard to make predictions about the world which allow us to feel safe. Such difficulties are likely both to compound and increase the distress of this vulnerable group. Finally, in considering deficits in ToM, one must bear in mind that general cognitive decline is typical in individuals who experience enduring schizophrenic symptoms and for whom the use of neuroleptics is long-term (Langdon et al., 2002). While it would involve complex methodology, research that controlled statistically for the effects of general cognitive decline might be an interesting way forward in validating this theory.

This review will now turn to the second metacognitive model – Morrison's (2001) cognitive model of psychosis which incorporates the S-REF model (Wells & Matthews, 1996).

A Cognitive Model of Psychosis (Morrison, 2001)

Morrison (2001) applied the CBT misinterpretation model of anxiety to his model of psychosis. He pointed out that cognitive models of anxiety are generally concerned with misinterpretations of essentially normal intrusions. Examples might be misinterpreting chest pain as a sign of an impending heart attack as in panic disorder (Clark, 1986); misinterpreting unexpected physical symptoms as evidence of serious physical illness as in hypochondriasis (Warwick & Salkovskis, 1990); or the negative

appraisal of an intrusive thought causing an obsessive-compulsive disorder (Rachman & de Silva, 1978). Such anxiety disorders are maintained through selective attention and hypervigilance to sources of perceived threat (Clark, 1986; Salkovskis, 1988). Morrison (1998) suggested that hallucinations and delusions should be viewed as essentially normal phenomena that intrude consciousness. What distinguishes psychiatric populations is their appraisal of these experiences. While 39% of the general population report auditory hallucinations, the great majority of people who experience hallucinations pay little regard to them (Barrett & Etheridge, 1994).

In addition to the misinterpretation of normal experiences, the S-REF model of emotional disorders (Wells & Matthews, 1996) is central to Morrison's (2001) model. The S-REF model emphasises the role of metacognitions in explaining anxiety disorders. The model argues that vulnerability to psychological difficulties is associated with a cognitive-attentional syndrome that involves heightened self-focused attention, attentional bias, ruminative processing and the activation of dysfunctional beliefs. Wells and Matthews (1994; 1996) propose that certain types of metacognitions are a generic vulnerability factor for psychological distress. Thus, disorders marked by disturbances in the regulation of thinking evidence strong metacognitive involvement. Central to the distress experienced is the appraisal of, and response to, cognitive processes, as opposed to the content of cognitions (Wells, 1995). Examples would be, the individual's beliefs about his or her thought processes (e.g. "I have a poor memory"); considering what is correct thinking (e.g. "my worrying could make me go mad"); and worrying about the thought content (e.g. "it is bad to think about death"). According to the S-REF model,

dissonance arises when the intrusions are incompatible with metacognitive beliefs (i.e. beliefs about one's ability to control one's thoughts) and produces distress. Such distress might motivate an individual to reduce cognitive dissonance, for example attributing a voice to an external source (Morrison, Haddock, & Tarrier, 1995).

According to Morrison's (2001) model, it is the culturally unacceptable nature of the interpretation of an intrusion that renders it a psychotic phenomenon and it is this interpretation that causes the distress. Thus, interpreting racing thoughts or palpitations as a sign of alien control would be classified as delusional. Interpreting the same sensations as an impending heart attack would be classified as panic. Such interpretations will be maintained by safety behaviours, selective attention, plans for processing, faulty self-knowledge (metacognitive beliefs), social knowledge, mood (anxiety, guilt, increased arousal, etc.), physiology, and cognitive-behavioural responses (Morrison, 2001).

There is some evidence to support this model. For example, individuals who experienced psychotic phenomena (hallucinations and delusions) and individuals with panic disorder scored higher than a non-clinical control group on measures of dysfunctional metacognitions (Morrison & Wells, 2003). Dysfunctional metacognitions refer to both positive and negative beliefs about thoughts. Morrison and Wells (2003) also found that individuals with auditory hallucinations scored higher than the two clinical control groups on metacognitions, such as positive beliefs about worry, negative beliefs about uncontrollability and danger, and negative beliefs about superstition, punishment, and responsibility.

Morrison's (2001) model might act as a useful framework in which to formulate persecutory delusions as it draws on a strong CBT evidence base. It encompasses a number of the themes discussed in previous models, for example, the observation that individuals with persecutory delusions attend selectively to threat-related stimuli (Bentall & Kaney, 1989). Also, the proposition that individuals might be motivated to reduce cognitive dissonance is similar to Bentall's (1994) ideas about the need to reduce actual, ideal-self discrepancies. Further research is needed into the relationship, if any, between certain metacognitions and particular disorders. In addition to the central role of metacognitions, Morrison's (2001) model emphasises a key role for emotions and the use of safety behaviours in the maintenance of psychotic symptoms.

While many references have been made to elevated levels of anxiety being a characteristic of individuals with persecutory delusions (e.g. Maher, 1974; 1988; Gilbert, 1998), until quite recently the role of emotions has received little attention. However, Garety (1991) reported similar anxiety levels between a persecutory delusion group and an anxious control group and Chadwick and Lowe (1990) reported a reduction in anxiety that correlated with a reduction in belief conviction. The next section will consider the role of affect in the formation and maintenance of persecutory delusions.

The Role of Affect

This section will consider the application of Barnard's (1985) and Barnard and Teasdale's (1991) Interacting Cognitive Subsystems (ICS) model in formulating severe mental illness (Gumley, White, & Power, 1999; Clarke, 1999). It will also review the

studies which have suggested a central role for emotions in the formation and maintenance of persecutory delusion (Garety, 1991; Garety & Hemsley, 1994).

Interacting Cognitive Subsystems (ICS)

Interacting Cognitive Subsystems (Barnard, 1985; Barnard & Teasdale, 1991; Teasdale & Barnard, 1994) offers a systemic framework in which to conceptualise depression but the model can be applied to a range of psychological problems. The model is complex and will not be explained fully here and the interested reader is referred to Barnard & Teasdale, 1991). Gumley et al., (1999) and Clarke (1999) applied the ICS model to severe mental illness. The original ICS model postulates that nine aspects of information processing may directly or indirectly contribute to the production or experience of emotion. Of the nine sub-systems, Gumley et al., (1999) and Clarke (1999) focused on the two higher order meaning-based systems, 'propositional' (i.e. the intellectual level) and 'implicational' (i.e. the emotional and schematic level), which are concerned with memory and the production of emotion. According to the model, propositional memory is verbally coded and implicational memory is encoded in a variety of sensory modalities. The model also postulates that an immediate connection will be made between implicational memory and a body state sub-system (physiological arousal). Information will be more readily accessed if it is stored in the same sub-system. The central engine of the ICS model is conceptualised as the interaction between these two levels (propositional and implicational).

Gumley et al., (1999) applied this model to the formation and maintenance of psychotic symptoms. They suggested that symptoms develop as a result of the ICS central engine's attempt to reduce discrepancies between sub-systems. Thus delusions arise from an interaction between externally derived sensory inputs (e.g. voice tone, criticism, visual images), propositional meaning (e.g. "I believe X thinks Y about me") and internally derived sensory inputs (e.g. body-state and information processing). They suggested that individuals are motivated to protect evolutionary strategies associated with private social attractiveness, which is maintained through the external attribution of discrepancies. According to Gumley et al.'s, (1999) application of the model, persecutory delusions are formed due to this external attribution of discrepancies of experiences. The authors propose that symptoms will be maintained through the matching of current stimuli with previous experiences of psychosis that are accessed through implicational memory.

Clarke's (2002) application of the ICS model to the formulation of psychosis is from a slightly different perspective. According to Clarke (2002), healthy functioning is achieved through ease of communication between the two sub-systems (propositional and implicational). She suggests that implicational memory, which records meaning at a more generic level and which is encoded in a number of sensory modalities, is the most immediate and vivid. Thus, the socially anxious individual entering a room of people will make rapid connections between events of personal meaning stored in implicational memory, such as an embarrassing moment flashing into consciousness before accessing the logical information, such as possible topics of conversation, stored in the

propositional memory. Due to the immediate connection made between implicational memory and a body state sub-system (physiological arousal), a cycle of appraisal of threat and arousal follows. This is because meaning is drawn from implicational memory (the most immediate and accessible) but not from propositional memory. In turn, information from implicational memory leads to confirmation of the appraisal of threat and an anxiety response. The activation of this vicious cycle, together with underlying negative schema (also stored at an implicational level), are likely to lead to an habitual maladaptive response.

Gumley et al., (1999) and Clarke's (2002) use of the ICS model highlights the need to consider the role of emotions in the formation and maintenance of persecutory delusions. However, there are a number of difficulties which apply to both models. ICS derived models are conceptually complicated and difficult to share in clinical practice. To date there have been no randomised control trials or published evidence for the efficacy of ICS in working with psychosis. That said, ICS based models are promising because they are able to consider a number of factors in the formation and maintenance of psychotic symptoms. The complicated nature of its conceptualisation may also be wholly applicable to the complicated nature of the symptoms of psychosis.

The second area of research that gives a central role to emotions in the formation and maintenance of persecutory delusions, comes from the findings of Freeman and Garety (1999).

Cognitive Appraisal and Emotions

Garety and Freeman (1999) reviewed theories and evidence for cognitive approaches to delusions and, at that time, they highlighted the need for researchers to begin to look at the role of affect, particularly anxiety, in the formation and maintenance of delusions. It may be recalled that Garety (1991) found evidence that anxiety was consistently elevated in individuals with persecutory delusions. In addition, Garety and Hemsley (1994) included the role of affect in their early model of persecutory delusions. Freeman and Garety (1999) examined the role of anxiety in the maintenance of delusional beliefs. They applied Wells' (1994; 1995) metacognitive model which offers an explanation as to why worrying is so excessive in individuals with generalised anxiety disorders (i.e. worrying about worry, e.g. "worrying will make me go crazy"). They conducted a cross-sectional study and compared ratings on tendency to worry and meta-worry between 15 individuals with persecutory delusions and 14 individuals with generalised anxiety. Both groups reported similar levels of anxiety and a similar tendency and frequency to worry. In addition, both groups reported experiencing meta-worry, i.e. for the delusional group this was worrying about controlling delusion-relevant thoughts. The final interesting finding was that the presence of meta-worry and trait anxiety were strongly correlated with delusional experiences, i.e. as delusional distress increased so did meta-worry. It suggests that the distress caused by a delusion is not simply a reaction to the belief, but also results from worrying about a lack of control of the thought. As well as validating the importance of anxiety in formulating

persecutory delusions, these findings also support Morrison's (2001) cognitive model of psychosis that hypothesises a central role for metacognitions.

Freeman, Garety, and Phillips (2000) looked at whether individuals who experienced persecutory delusions showed signs of hypervigilance, similar to individuals who suffer from generalised anxiety. The authors compared 12 participants with generalised anxiety with 11 participants with persecutory delusions and 12 non-clinical controls on a visual scanning task. They found none of the clinical groups spent longer scanning threat-related photographs. These findings are interesting because they contradict earlier studies which found that individuals with persecutory delusions did attend selectively to threat-related stimuli (Bentall & Kaney, 1989). This generated the potential hypothesis that anxiety might be associated with internal, self-reflective processes due to personal vulnerability.

Applying the ICS model and the association between cognitive appraisal and emotions make a potentially important contribution to the research into persecutory delusions. Both approaches suggest that disturbed affect has a central role and that targeting affect in treatment, particularly anxiety, might be key to alleviating distress in this population.

To recapitulate on the literature reviewed so far, a number of theories have attempted to understand the underlying mechanisms involved in the formation and maintenance of persecutory delusions. Theories have ranged from faulty perceptual experiences (Maher,1974; 1988), disruption in cognitive processes, for example,

reasoning biases (Garety & Hemsley, 1994) to attributional defences (Bentall, 1994). Deficits have also been found on ToM tasks (Frith, 1992) and, more recently, excessive appraisal of cognitive processes have been found in individuals with persecutory delusions (Morrison, 2001). Garety and Freeman (1999) were among the first researchers to highlight the need to consider the role of affect, particularly anxiety, in the formation and maintenance of delusions. Gumley et al., (1999) and Clarke (1999) suggested formulating the symptoms of psychosis using an ICS model (Barnard & Teasdale, 1991). However, given the complexity of psychosis, it is highly probable that developing an understanding of persecutory delusions is likely to involve a number of potential factors. A recent model of persecutory delusions attempts to integrate a number of the processes described in the various models reviewed here and will be presented in the next section.

Multi-Dimensional Cognitive Model of Persecutory Delusions

Taking a single-symptom approach, Freeman, Garety, Kuipers, Fowler, and Bebbington, (2002) proposed a cognitive model to explain the formation and maintenance of persecutory delusions. It is multi-dimensional, as the authors argue that the heterogeneity of presentation means a number of factors are likely to contribute. Their model integrates both the anomalous experience hypothesis and flawed cognitive mechanism theories and draws on existing models (e.g. Maher, 1974; 1988; Frith, 1992; Hemsley, 1993; Bentall, 1994). It takes account of disruptions in cognitive processes, biased conscious appraisals and social factors in the maintenance and recurrence of persecutory delusions. The model also posits a central role for emotions. In developing

this, the authors drew on their earlier model of the symptoms of psychosis which will now be outlined (Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001)

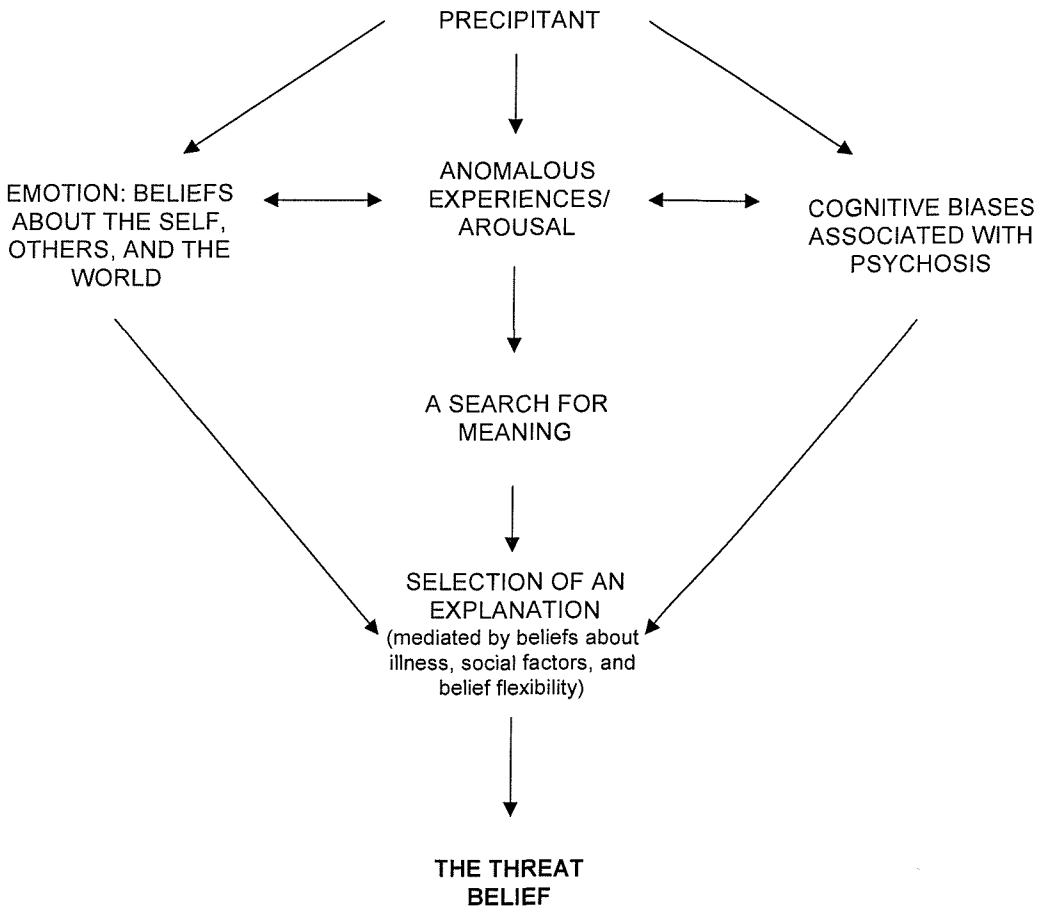
Garety et al., (2001) proposed a cognitive model of psychosis. Drawing on a stress-vulnerability framework, the authors proposed that a trigger would occur for individuals with a biological predisposition to developing psychosis (Neuchterlein, 1987). Examples of triggers might be adverse environmental conditions, a life event, substance use, or periods of isolation. Following the trigger, emotional changes and disruptions in cognitive processes of attention, perceptions, or judgements occur which lead to anomalous experiences. For example, ambiguous sensory information causing unintended material in the memory to reach consciousness (Hemsley, 1993), or difficulties in self-monitoring, resulting in experiencing one's own intentions as alien (Frith, 1992). Emotional changes occur due to the triggering event and are exacerbated in response to the anomalous experience. Following the anomalous experience a search for meaning takes place. In the confusion of the experience, a search for an explanation is likely to lead to an external attribution. This process would be influenced by biases in cognitive appraisals such as a jump to conclusion information gathering style (Garety & Hemsley, 1994); externalising attributional biases (Kaney & Bentall, 1989); and difficulties in understanding social situations, particularly the intentions of others (Frith, 1992). The authors suggest these biases are likely to be exaggerated due to a negative emotional state.

Freeman et al., (2002) applied this model to persecutory delusions and in considering the central role for emotions in their formation and maintenance, conceptualised them as threat beliefs as found in anxiety disorders. A summary of the model will follow.

Formation of Persecutory Delusions (Freeman et al., 2002)

The model proposes that the formation of persecutory delusions result from a search for meaning following an anomalous experience as described by Garety et al., (2001). Figure 1 is a diagrammatic presentation of this. Thus, in vulnerable individuals, a trigger will lead to heightened arousal levels. This causes inner-outer confusion that results in an anomalous experience, such as experiencing thoughts as voices (Fowler, 2000). Anomalous experiences may be generated via three routes. First, the triggering event may lead directly to an anomalous experience. Second, emotional disturbance following the trigger may cause anomalies. Third, cognitive biases associated with psychosis may lead to anomalies.

Figure 1[1]. Summary of the formation of a persecutory delusion (Freeman et al., 2002)



In addition to the influence of cognitive biases to explain the experience, Freeman et al., (2002) proposed that explanations would be mediated by beliefs about illness, social factors, and belief flexibility. A persecutory belief is likely to be formed if an individual believes, for example, that he or she deserves harm because of previous behaviour, or views other people as hostile due to early life experiences such as trauma. Furthermore, believing that there is something wrong such as a mental illness might be

[1] Permission to reproduce received from the British Psychological Society (Appendix C)

more distressing than believing that one is being persecuted (Birchwood, 1995). While Freeman et al., (2002) do not support the idea that persecutory delusions act as a defence against low self-esteem (Bentall, 1994), they do suggest that an external attribution bias may exist which limits distress and thus ameliorates the potential negative effects of the experience on self-esteem. Freeman et al., (2002) hypothesise that anxiety has a direct influence on the formation of persecutory delusions. Central to their model is the conceptualisation of persecutory delusions as threat beliefs. Therefore, they suggest that the formation and maintenance of delusions will be similar to those found in anxiety disorders. As in anxiety disorders, the content of persecutory delusions includes physical, social, and psychological threat (Freeman & Garety, 1999). Unsurprisingly, individuals who develop psychosis have been found to have pre-morbidly high levels of anxiety (Jones, Rodgers, Murray, & Marmot, 1994; Tien & Eaton, 1992).

In summary, Freeman et al.'s, (2002) model conceptualises persecutory delusions as beliefs about threat and suggests that the processes underlying the threat are the same or similar to those found in anxiety disorders. Drawing on the knowledge about anxiety disorders, the next section will consider how these beliefs are maintained despite the feared event failing to occur.

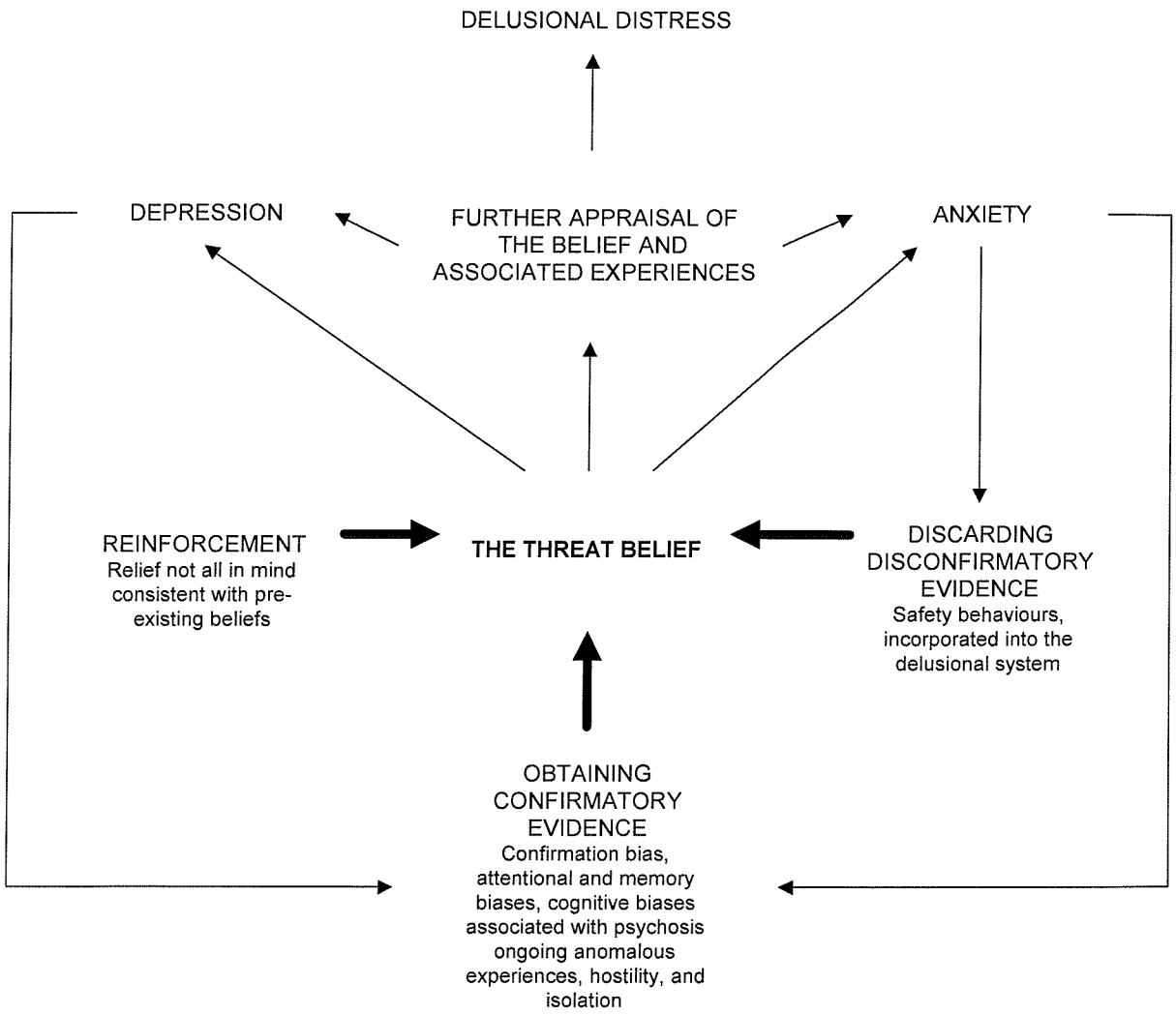
Maintenance of Persecutory Delusions (Freeman et al., 2002)

Persecutory delusions are maintained by a number of processes which interact with one another. An example might be through the relief in finding an explanation for the unusual experience or through the obtaining of confirmatory evidence and the

discarding of disconfirmatory evidence. A diagrammatic presentation of the maintenance of persecutory delusions is presented in Figure 2. Threat will also be preferentially processed (Bentall & Kaney, 1989) as found in emotional disorders. Freeman and Garety (2003) found that both negative events and neutral events (such as a glance in the street) were interpreted as threatening. In addition, positive events such as a smile were interpreted as threatening. According to the model, ideas of threat are more likely to prevail if a person is isolated and has little interaction with others to assist in revising thoughts (Wahl, 1999). These factors, together with a low capacity for considering alternative explanations, might lead an individual to accept the persecutory belief. The cognitive biases associated with psychosis, such as jumping to conclusions (Garety & Hemsley, 1994), are likely to provide further evidence for a threat belief.

The authors propose that the primary reason the belief persists is due to the use of safety behaviours which in turn leads disconfirmatory evidence to be discarded (Salkovskis, 1991; 1996). Safety behaviours are actions (both overt and covert) which an individual performs in order to reduce threat when he or she is in a feared situation. Examples include holding onto a piece of furniture to prevent fainting, continuous scanning of the environment for danger, repeated praying etcetera. Engaging in safety behaviours often results in the misattribution of positive outcomes and are self-reinforcing. In other words, the feared event failed to occur because individuals believe that they have prevented it, for example, "I would have fainted had I not held onto the chair".

Figure 2[2]. Summary of the maintenance of a persecutory delusion (Freeman et al., 2002)



Freeman et al., (2002) hypothesised that individuals with persecutory delusions engage in regular safety behaviours in order to reduce threat. The result of using these safety behaviours is either that disconfirmatory evidence is not received or is not processed. A vicious cycle follows in which higher levels of anxiety associated with the

[2] Permission to reproduce received from the British Psychological Society (Appendix C)

persecutory delusion leads to greater use of safety behaviours (Buchanan et al., 1993). Freeman et al.'s, (2002) model suggests that in-situation overt and covert safety behaviours, as well as avoidance, escape, compliance and aggression, all contribute to the discarding of disconfirmatory evidence. The model also suggests that disconfirmatory evidence is discarded due to the failure of the threat to occur being incorporated into the individual's delusional beliefs (Melges & Freeman, 1975). This refers to altering their beliefs to accommodate all eventualities, for example rationalising, "if I do X, then he will do Y and if he doesn't do Y it is because he knew I was going to do X", and so on.

Freeman et al.'s, (2002) model incorporates emotional distress as central to the maintenance of threat beliefs. Emotional distress arises either from further appraisal of the delusion or directly from its content. In turn, delusional beliefs will maintain and exacerbate the emotion. Thus, an integral link exists between emotional distress and delusional content. The belief will cause elevated levels of anxiety. However, anxiety will also be influenced by beliefs about the threat, such as estimates of how likely the event is to occur, how awful it would be should it occur, and the presence of rescue factors. Drawing on Chadwick and Birchwood's (1994) and Trower and Chadwick's (1995) writings, Freeman et al., (2002) suggest that depression is likely to be affected by the perceived powerfulness of the persecutor and whether the persecution is deserved as a form of punishment. Another exacerbation of emotions can be through further appraisal in relation to the self. Fowler (2000) hypothesised that negative emotions in relation to a delusional belief might lead an individual to become 'stuck in psychosis'.

This might lead to further appraisals in which an individual concludes that it is a sign of his or her personal badness or failure. For some individuals such beliefs about the self are long standing; for others, thoughts of badness and failure might be triggered by the delusional beliefs. The model also predicts that depression will increase if someone's perception is of little control over the situation and if individuals with persecutory delusions then transfer this belief to many areas of life. Finally, when this perception occurs the individual might easily find confirmatory evidence once in the mental health system (e.g. perception of little control over destiny such as being on a mental health section, or being observed and evaluated by professionals). The model also predicts that anxiety will be negatively correlated with control over persecutory thoughts.

In summary, Freeman et al.'s, (2002) model is an interesting but complex multi-faceted exploration of persecutory delusions. The model incorporates theories of anomalous experiences and search for meaning, cognitive biases, and emotions in the formation of persecutory delusions. It accounts for the fact that the conclusions that are reached are likely to be influenced by pre-existing beliefs, personality and the environment. It also suggests that these beliefs are maintained due to a number of factors, in particular the discarding of disconfirmatory evidence and the obtaining of confirmatory evidence for the belief, as is commonly found in anxiety disorders (Salkovskis, 1991; 1996).

This model is elaborate and to date represents the culmination of a number of cognitive accounts of persecutory delusions. It also holds promise in applying a single symptom approach and in considering symptoms on a continuum with normal

psychological processes. The central role for emotions is particularly discerning given that, until very recently, the neuroses and psychoses were viewed as distinct. The multifactorial approach, rather than invalidating previous research, serves to validate many features of the earlier theories. Applying Freeman et al.'s, (2002) model to the formulation of an individual's difficulties, is likely to result in various factors being weighted differently. This permits experimentation using single-case designs.

The main criticism of the model is its complexity. This complexity makes it potentially difficult to share with clients, which is a central component of CBT. A further criticism is the model's attempt to be all encompassing, although paradoxically this may also be a strength. As it is unlikely that all factors of the model would apply in formulating an individual's difficulties, generalisable predictions could not be made and subjected to randomised control trials. A degree of validity might be achieved, if the model was used to formulate an individual's experiences and subsequent treatments were evaluated using single-case experimental designs. That said, generalisable results could also be achieved through selecting one of the model's characteristics from which to generate experimental hypotheses.

Conclusions

This review has highlighted important developments in the research into psychosis and has provided a rationale for conceptualising the symptoms on a continuum with normal functioning. For many years, research into persecutory delusions was hampered due to the failure to apply what is known about normal psychology (e.g.

cognitive, affect, social etc.) to the study of psychosis and to the categorisation of symptoms into syndromes. Historically, there has been a sharp distinction between the neuroses and psychoses. However, the models discussed in this review and the consequent studies do not support such a divide. Indeed, the final model reviewed posits a central role for anxiety in the formation and maintenance of psychosis (Freeman et al., 2002).

This paper has reviewed models which targeted specific cognitive domains to explain the formation and maintenance of persecutory delusions. For example, Bentall (1994) suggested attributional biases were integral, Frith (1992) speculated about theory of mind deficits, and Morrison (2001) emphasised misinterpretation of essentially normal experiences and the consequential appraisal of thoughts. However, these models generally gave no account of the wider context such as social and environmental factors (Birchwood, 1999). The multifactorial model developed by Freeman et al., (2002), while complicated, presented a sophisticated and systemic approach. The model is able to account for the development of persecutory delusions via a number of routes and encompasses ideas drawn from other models. Central to the maintenance of delusions is the role of anxiety. The application of models of anxiety to the study of psychosis has important treatment implications as it allows researchers and practitioners to draw on an extensive evidence-based CBT literature.

A number of possibilities for future research have arisen as a result of reviewing this literature. The evidence for a defence hypothesis as proposed by Bentall (1994) may apply to some individuals with persecutory delusions. An investigation into the

relationship between personality characteristics and psychotic symptoms might identify predictors of this defence being activated. A greater understanding of the prevalence of Bentall's (1994) defence hypothesis, might also shed light on Trower and Chadwick's (1995) two types of paranoia theory. Such theoretical understandings are essential to the underpinnings of efficacious treatment packages. Metacognitive processing difficulties also have important treatment implications. For example, an individual who has difficulty appreciating another person's mental state, is likely to feel vulnerable. In this respect, a deficit in ToM will impact on the ability to predict one's surroundings, an essential survival mechanism. One way of gaining a greater understanding of these difficulties, might be to conduct qualitative research into themes of persecutory delusions to help understand how others' beliefs are interpreted in the mind of the person who experiences persecutory delusions. The Freeman et al., (2002) multifactorial model suggests many interesting avenues for future research. Freeman, Garety, and Kuipers (2001) found that individuals with persecutory delusions engage in a number of safety behaviours which they speculate serve to maintain these persecutory beliefs. Thus, Freeman et al., (2001) hypothesised the same mechanisms were involved as evidenced in anxiety disorders. An area to consider is whether engagement in safety behaviours does serve the same function as found in anxiety disorders and whether both groups report them to be equally effective coping mechanism. These suggestions are by no means exhaustive but pose some interesting opportunities for future studies into an under-researched area.

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Empirical Paper*

Safety Behaviours in Persecutory Delusions

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Kim V. Jolliffe

Correspondence regarding this article should be addressed to
Kim Jolliffe, Doctoral Programme in Clinical Psychology, Shackleton Building (44),
University of Southampton, Highfield, Southampton, SO17 1BJ

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Abstract

Freeman, Garety, Kuipers, Fowler, and Bebbington's (2002) multi-factorial model conceptualises persecutory delusions as threat beliefs which are maintained by the same mechanism as anxiety disorders. This study replicated and expanded earlier research by investigating the use of safety behaviours in persecutory delusions (Freeman, Garety, & Kuipers, 2001). Persecutory delusions (n = 15), anxiety disorder (n = 15) and non-clinical control (n = 15) groups were compared on their use of safety behaviours and cognitive strategies. Data were collected using the Beck Depression Inventory, State-Trait Anxiety Inventory, Thought Control Questionnaire, Anxiety Control Questionnaire, Social Avoidance and Safety Behaviours Questionnaire, Details of Threat, and Safety Behaviours Questionnaire. The two clinical groups did not differ from each other but differed from non-clinical controls on the use of cognitive strategies. Both clinical groups reported using safety behaviours to a similar degree and largely with the same function.

Key words: Persecutory Delusions, Anxiety Disorder, Safety Behaviours, Cognitions

Introduction

Delusions are described as 'erroneous beliefs that usually involve a misinterpretation of perceptions or experiences' (Diagnostic and Statistics Manual of Mental Disorders [4th Ed.], '*DSM-IV*', p. 275, American Psychiatric Association, 1994). *DSM-IV* also states that it is hard to distinguish between delusions and strongly held ideas. This supports contemporary trait theories which suggest that delusions are best conceptualised as being on a continuum with normal functioning (e.g. Claridge, 1987).

The focus of this paper is on delusions of a persecutory type. Persecutory delusions are defined as an individual's belief that he or she is being 'tormented, followed, tricked, spied on or subjected to ridicule' (*DSM-IV*, p. 275). For example, an individual might believe that the FBI is after him or her in the absence of any concrete evidence. In order to meet diagnostic criteria, the degree of conviction in the delusion and the distress it causes must be marked and must impact significantly on the individual's everyday functioning. The frequent comorbid experience of hallucinations with delusions, such as hearing voices plotting against the individual, can add to the amount of emotional distress the person experiences. However, hearing voices and believing that other people are against you can be the result of misinterpreting everyday experiences (Morrison, 2001). Indeed, general population prevalence data suggest that many individuals have had experiences that could be classified as verbal hallucinations or persecutory delusions. For example, Peters, Joseph, and Garety (1999) found that one in ten non-clinical participants endorsed more items on the Peters et al. Delusions Inventory (PDI – Peters, Joseph, & Garety,

1999) than psychiatric in-patients. Fifty-seven percent of the non-clinical group reported believing that people had dropped special hints about them or had said things with a double meaning and 32% reported believing that everyone had gossiped about them at times. The difference between the clinical and non-clinical groups lay in the accompanying levels of distress, preoccupation, and conviction, which were significantly higher in the clinical group. These data beg the question as to why the experience is so distressing for some individuals and yet for others it is innocuous.

Attempts to answer this question have been hampered by a traditional medical method of approaching the phenomena. Historically, research sought an organic explanation for persecutory delusions. Influential scholars endorsed this approach by suggesting that persecutory delusions were psychologically irreducible (Jaspers, 1913) and bore no relevance to an individual's life (Berrios, 1991). However, persecutory delusions often contain information relevant to the concerns that individuals have about themselves and the world and frequently reflect early experiences (Brabban & Turkington, 2002). More recently, researchers have started to formulate models to explain how persecutory delusions develop and are maintained drawing on models of normal cognitive functioning.

Strauss (1969) was one of the first people to suggest that delusions should be viewed on a continuum with normal functioning and this paved the way for investigations using cognitive and behavioural paradigms. Since then a number of psychological explanations have been proposed. One early and influential suggestion was that persecutory delusions were the result of an individual's attempt to make

sense of unusual perceptual experiences (Maher, 1974; 1988). However, later models emphasised cognitive rather than perceptual disturbances. For example, Kaney and Bentall (1989) found that individuals with persecutory delusions demonstrated an exaggeration of the normal self-serving bias of internally attributing positive events and externally attributing negative events (Kelley, 1967). Garety and Hemsley (1994) reported on a series of studies which showed that individuals with persecutory delusions demonstrated a style of reasoning characterised by a tendency to 'jump to conclusions' based on limited information.

Other cognitive models have suggested that persecutory delusions result from difficulties in metacognitive processing. For example, Frith (1992) found evidence that individuals with persecutory delusions performed poorly on theory of mind tasks that required the ability to guess the intentions of other people. He suggested that this difficulty led the individual to misinterpret another person's intentions as persecutory. More recently, Morrison (2001) suggested that persecutory delusions result from misinterpreting normal intrusions into consciousness. Drawing from metacognitive models of anxiety, he speculated that delusions were then maintained because of heightened self-focused attention to the appraisal of cognitive processes (Wells & Matthews, 1994; 1996).

Following on from their own research and that of their peers (e.g. Kaney & Bentall, 1989; Maher, 1974; 1988), Garety and Hemsley (1994) proposed an early multifactorial model of the formation of delusions. They suggested that delusions were likely to result from a number of factors and they argued that different types of delusions might involve different mechanisms. For example, personality, affect, self-

esteem and motivation might be at the root of some delusions, whereas for others, abnormalities in perception and judgement might be more prominent.

Incorporating aspects of Garety and Hemsley's (1994) original model, Garety, Kuipers, Fowler, Freeman, and Bebbington (2001) proposed a more recent multifactorial model to explain the symptoms of psychosis. Freeman, Garety, Kuipers, Fowler, and Bebbington (2002) applied this model to the formation and maintenance of persecutory delusions. The authors suggest that a variety of contributory factors lead to the formation of a persecutory delusion. The model also incorporates a number of other research findings (e.g. Maher, 1974; 1988; Kaney & Bentall, 1989; Frith, 1992).

A Cognitive Model of Persecutory Delusions

Freeman et al.'s, (2002) model conceptualises persecutory delusions as threat beliefs which are maintained by the same processes that maintain fear and anxiety in anxiety disorders. The model assumes that certain individuals are predisposed to the symptoms of psychosis (i.e. drawing from a stress vulnerability framework, Strauss & Carpenter, 1981) and following a trigger, such as a life event, a threat belief will be activated. The authors suggest that the most likely route to developing a persecutory belief is the occurrence of an anomalous experience which leads to a search for meaning. Once an individual perceives an experience as anomalous, his or her anxiety levels will increase. At the same time, the cognitive biases associated with psychosis, such as a tendency to reach conclusions based on limited information or exaggerated self-serving biases, will be activated. The anomalous experience could be internal (e.g. becoming aware of an inner voice) or external (e.g. noticing

the prominence of security cameras), but the essential characteristic is that it will be perceived as alien, making it probable that the individual will select an external explanation. This external explanation is likely to lead to the perception of being under threat (e.g. being pursued by the FBI).

Following the formation of the threat belief/delusion, Freeman et al., (2002) say the belief will be maintained through the same processes as those found in anxiety disorders. First, the threat belief and ongoing appraisal of the belief will both induce depression and elevate anxiety levels. Second, the belief will be reinforced due to the relief that comes from having found an explanation for the unusual experience. Third, the belief will be maintained through obtaining confirmatory evidence (e.g. interpreting a glance in the street as hostile) and discarding disconfirmatory evidence (e.g. going out and nothing happening). Central to the discarding of disconfirmatory evidence is the use of safety seeking behaviours (Salkovskis, 1991; 1996).

Safety Behaviours

Models of anxiety disorders show that individuals alter and inhibit behaviours in response to threat beliefs (Clark, 1998). For example, an individual with panic disorder who interprets anxiety symptoms as a sign of cardiac disease, may avoid exercise if he or she experiences palpitations. The reduction in palpitations owing to the avoidance serves to reinforce the belief that the heart attack would have occurred if she or he had continued to exercise. However, in reality, the avoidance stops the individual from learning that the symptoms were harmless. Thus, avoidance, escape, and in-situation safety behaviours all prevent disconfirmatory evidence from being

fully processed (Salkovskis, 1991; 1996). In-situation safety behaviours might be subtle and/or idiosyncratic acts, such as praying, in which an individual engages to keep safe when in a feared situation.

The cognitive processes and safety behaviours involved in anxiety disorders are well understood and can be seen as a normal reaction when faced with imminent danger. Until recently, no such conceptualisation had been applied to the maintenance of persecutory delusions. However, Freeman, Garety, and Kuipers (2001) hypothesised that individuals who experience persecutory delusions would engage in a number of safety behaviours comparable to those identified in anxiety disorders.

Safety Behaviours and Persecutory Delusions

To investigate their hypothesis, Freeman, et al., (2001) designed two semi-structured interview schedules: Details of Threat (DoT); and The Safety Behaviours Questionnaire – Persecutory Beliefs (SBQ). They identified five types of safety behaviours: avoidance, escape, within-situation behaviours, compliance and aggression. Thus, they included safety behaviours not generally associated with anxiety disorders. They studied 25 participants with persecutory delusions and all of them described using safety behaviours in the previous month. All the participants also reported believing that their safety behaviours had a degree of success. Freeman et al., (2001) concluded from these findings that safety behaviours acted as a maintaining factor in persecutory delusions as well as in anxiety disorders.

Freeman et al.'s, (2001) study showed an association between the use of safety behaviours and emotions. They found that avoidance was associated with increased anxiety levels, compliance with a reduction in self-esteem and the use of aggression with increased levels of anger. In addition, Freeman et al., (2002) found positive correlations between levels of depression and beliefs about the power of a persecutor, control of the situation and ability to cope. Participants also rated the likelihood of factors outside of their control rescuing them from the thing they feared, that is from the persecutor(s). Freeman et al., (2001) found that beliefs about being rescued by external factors correlated negatively with anxiety levels. This finding is important as according to the cognitive theory of anxiety, perceptions of rescue factors contribute to the assessment of one's ability to cope and perceived ability to cope affects levels of distress (Beck, Emery, & Greenberg, 1985). In support of this theory, Chambless and Goldstein (1982) found that the presence of a 'caretaker' reduced perceptions of threat.

Freeman et al.'s, (2002) model assumes that the same underlying processes maintain both anxiety disorders and persecutory delusions. In support of their hypothesis they found that individuals with persecutory delusions did indeed use safety behaviours. They interpreted the use of safety behaviours as a maintaining factor in persecutory delusions and recommended targeting safety behaviours in therapy (Freeman, et al., 2001). However, to date, Freeman et al., (2001) have conducted the only published study supporting this hypothesis. While their findings are interesting, there were some methodological problems with their design. Freeman et al., (2001) did not include clinically anxious or non clinical control groups. Therefore, similarities and differences between the two clinical groups have not been

identified. Thus, currently, the evidence is insufficient to suggest applying the cognitive-behavioural principles of anxiety disorders to the treatment of persecutory delusions.

The present study was designed to investigate the use of safety behaviours in persecutory delusions. There were three main aims. One, to replicate Freeman et al.'s, (2001) results and show that individuals with persecutory delusions use safety behaviours to control an identified threat. For comparison purposes, a clinical anxiety control group and a non-clinical control group were recruited. Two, to investigate whether there were any differences between the groups in their perception of the effectiveness of safety behaviours and whether there were any differences between the groups in their perceptions of the likelihood of being rescued by external factors. The third aim was based on the central feature of Freeman et al.'s, (2002) model that persecutory delusions should be conceptualised as a source of threat. The authors suggest that individuals with persecutory delusions will react to this threat in much the same way that individuals with anxiety disorders respond to threat. As well as using safety behaviours to control threat, individuals with anxiety disorders also use a variety of cognitive control strategies. Therefore, the third aim of this study was to investigate any differences between the groups' use of cognitive strategies such as controlling unwanted thoughts and controlling anxiety levels. The main hypothesis derived from Freeman et al.'s, (2002) model was that individuals with persecutory delusions and individuals with anxiety disorders would both use safety behaviours more than individuals in the non-clinical control group. A further hypothesis was that both clinical groups would use more dysfunctional cognitive control strategies in response to threat than the non-clinical control group.

Method

Design

The study used a cross-sectional independent measures design to assess the use of safety behaviours in a group of individuals with persecutory delusions, an anxious clinical control group, and a non-clinical control group.

Participants

There were three groups of participants: persecutory delusion (n = 15); anxiety control (n = 15); and non-clinical control (n = 15). The two clinical groups were recruited through Adult Mental Health and Community Mental Health Teams in Dorset HealthCare NHS Trust. Fifteen men and three women were approached to participate in the persecutory delusion group and three men declined. Seven men and nine women were approached to participate in the anxiety control group and one man declined.

Three modules of the Structured Clinical Interview for *DSM-IV-TR* AXIS 1 Disorders (SCID-I – First, Gibson, Spitzer, & Williams, 2001) were administered: the overview; the psychotic screening module to investigate the presence/absence of persecutory delusions; and the anxiety disorders modules to establish the presence/absence of an anxiety disorder. All members of the persecutory delusion group had been formally assessed by a Consultant Psychiatrist and their diagnosis was confirmed using *DSM-IV* (1994).

The persecutory delusion group comprised 12 men and 3 women who had experienced persecutory delusions in the previous month. 11 men and 3 women had

a diagnosis of schizophrenia and 1 woman had a diagnosis of schizoaffective disorder. Four were living independently, eight were living in supported accommodation and three were in hospital.

The anxiety control group consisted of six men and nine women, who belonged to the following diagnostic categories: Panic Disorder (n = 5); Social Phobia (n = 4); Obsessive-Compulsive Disorder (n = 1); Post-traumatic Stress Disorder (n = 1); Generalised Anxiety Disorder (n = 2); and specific phobias (n = 2).

The non-clinical control group consisted of 12 men and 3 women, none of whom met the criteria for a psychiatric diagnosis. They were an opportunistic sample recruited from friends, colleagues and acquaintances. The majority were not well known to the researcher. Experienced health care staff were not recruited due to their potential knowledge of the research area.

Measures

Details of Threat Inventory – Revised (DoT – Freeman et al., 2001; Appendix D)

The DoT is a semi-structured interview schedule designed for use with individuals with persecutory delusions and comprises 15 questions. The first items elicit a description of a threat belief, whether the persecutor(s) is known, or has been seen by the individual. This is followed by questions about imminence of threat; where and when the threat might occur; time spent worrying; belief conviction; perceived power of the persecutor; awfulness; perceived ability to cope; whether harm is deserved; likelihood of rescue factors; and perception of control. The

majority of items are rated on a 0 to 10 scale. The schedule was [1]adapted so that it could be used with the control groups as well as the persecutory delusion group. Items that asked about threat were replaced with 'threat/worry'. For example, item 11 was worded:

> 'how well would you cope if the threat/*worry* did occur?' (the wording in italics was added).

The Safety Behaviours Questionnaire – Persecutory Beliefs (SBQ – Freeman et al., 2001; Appendix E)

The modified SBQ is a semi-structured interview schedule designed to assess the use of safety behaviours in individuals with persecutory delusions. The schedule elicits safety behaviours and then assesses their frequency over the last month rated on a four-point scale: 1 = occurred on at least one occasion; 2 = occurred more than once but no more than five times; 3 = occurred at lest five times; and 4 = present more or less everyday. This study used an [1]adapted version of the SBQ so that it could be used with the two control groups. Items which asked about threat were replaced with an 'either/or' option of threat or worry. For example, item 3 was worded:

> 'Another thing that people do is leave a situation if they think that the threat/*the thing that worries them* is very imminent…'.

Inter-rater reliability for the majority of items was good (coefficients of .97-.99 at a 95% confidence interval "CI", Freeman et al., 2001). Test-retest reliability

[1] with permission from the authors

was acceptable, with most items ranging between .60 and .84 at a 95% CI (Freeman et al., 2001).

Social Avoidance and Safety Behaviours Questionnaire (SASBQ – Stopa, 1995; Appendix F)

This is a 37-item self-rating scale. 12 items assess social situations avoided due to anxiety and 25 items assess the use of safety behaviours when anxious in social situations. Responses are rated on a four-point scale from 'never' to 'always'. Elevated scores reflect increased social avoidance and increased use of safety behaviours in social situations. The social avoidance sub-scale yields a maximum score of 48 and the safety behaviours sub-scale yields a maximum of 100. The questionnaire was developed to investigate safety behaviours in social anxiety and has been used widely in this area (Stopa, 1995).

Thought Control Questionnaire (TCQ – Wells & Davies, 1994; Appendix G)

The TCQ is a 30-item self-report measure designed to assess individual differences in the use of thought control strategies when unpleasant or unwanted thoughts (verbal or visual) are experienced. Responses are rated on a four-point scale from 'never' to 'almost always'. The TCQ produces five subscales: Distraction, Social, Worry, Punishment, and Reappraisal. The total TCQ score is obtained by summing the subscales, with a maximum score of 120. Higher scores indicate greater control over thoughts. Test-retest coefficients were: Distraction, $r = .68$; Punishment, $r = .67$; Reappraisal, $r = .83$; Worry, $r = .72$; Social Control, $r = .83$; and Total score, $r = .83$. All were significant at a 99.9% CI (Wells & Davies, 1994).

Anxiety Control Questionnaire (ACQ – Rapee, Craske, Brown, & Barlow, 1996; Appendix H)

The ACQ is a 30-item self-report measure designed to assess perceived control over emotional reactions and external threats relevant to anxiety disorders. Responses are rated on a four-point scale from 'never' to 'almost always', yielding a maximum score of 120. Eighteen items were reverse scored. A factor analysis found two factors (labelled events and reactions). However, owing to the fact that there was strong internal consistency across all items and the small amount of variance explained by the second factor, the authors recommended using the ACQ as a unitary measure. Higher scores indicate greater control over anxiety. The following test-retest coefficients were obtained over three time points: between time point one and two, r = .88; between time point one and three, r = .82; and between time point two and three, r = .84. All were significant at a 99.9% CI (Rapee et al., 1996).

Beck Depression Inventory-II (Beck, Steer, & Brown, 1996)

This is a 21-item self-report instrument that assesses the severity of depressed mood. Statements are responded to on a four-point scale from 0 to 3. The BDI-II is the most recent version of the inventory that has good reliability and validity data spanning 35 years. The BDI-II yielded a test-retest coefficient of r = .93 at a 99.9% CI (Beck, Steer, & Brown, 1996).

State-Trait Anxiety Inventory (Form Y) (STAI – Spielberger 1983)

This is a 40-item self-report measure of anxiety. 20-items assess state anxiety on a 4 point scale from 'not at all' to 'very much so'. State anxiety may be transitory subjective feelings which are evoked by specific stimuli. 20-items assess trait anxiety on a 4 point scale from 'almost never' to 'almost always'. Trait anxiety is construed as a stable construct with individual differences in anxiety-proneness being conceptualised as a personality trait. The test-retest coefficients were between r = .34 and r = .62 on the state measure and between r = .65 and r = .75 (Spielberger, 1983) on the trait measure. Low stability coefficients for State anxiety were due to the influence of situational factors at the time of testing (Spielberger, 1983).

Procedure

Approval was granted from the local regional ethics committee to recruit participants from the local NHS Trust for this study (Appendix I). Data were collected in one session lasting approximately one and a half hours. Participants read the information sheet and signed the consent form (Appendixes J and K). All interviews followed the same format. Participants were administered the SCID-I overview and psychotic symptoms screening module for non-patients, as recommended for research purposes, and the SCID-I for *DSM-IV* diagnosis of Anxiety Disorders. The five questionnaires (BDI-II, STAI, TCQ, ACQ and SASBQ) were then completed by participants except for three participants in the persecutory delusion group, who asked the researcher to read the items out loud and complete the questionnaires for them. This was followed by two semi-structured interviews using

the DoT and SBQ. Certain items on the DoT and the SBQ asked participants specific questions about how they would respond to a threat from another person. As these questions were not suitable for the control groups, they were omitted (i.e. DoT items 2, 3, 4 and 9 and SBQ items 4 and 6). At the end, participants were debriefed and offered the opportunity to participate in a relaxation exercise. Clinical participants were given £5 to cover expenses.

Data Analyses

The distribution of the data were analysed using one-sample Kolmogrov Smirnov tests and data that were not normally distributed were log transformed. Data were analysed using parametric tests for independent measures (ANOVAs and t-tests). In the event that variance in the data significantly differed as analysed by the Levene test for equal variances, the statistic quoted assumed unequal variance. Of the 15 participants in the persecutory delusion group, 3 terminated the study early at different points and failed to complete the DoT and SBQ. Therefore, there are differing participant numbers across the analyses.

At the outset, the intention was to administer the full set of questionnaires and the two interview schedules to all three groups of participants. However, it became apparent that the SBQ was not valid with the non-clinical control group because the first item on the DoT asks participants if there is something which 'especially' worries them. None of the non-clinical control group was able to identify things that especially worried them but identified everyday concerns (Appendix N). The non-clinical group then reported functional coping behaviours in response to items on the SBQ rather than safety behaviours. An example is individuals who said they worried

about money, reporting that they settled the rent as soon as they were paid. The inappropriateness of the SBQ with the non-clinical group was confirmed by responses to item 7 on the DoT, 'time spent worrying', which was negligible for the non-clinical group, and responses to item 8, 'strength of belief', which was significantly lower for the non-clinical group. Therefore, data obtained from items on the SBQ were only analysed between the two clinical groups.

Results

Participant Characteristics

The mean ages and standard deviations for the three groups were: persecutory delusion (PD) 42 years (SD = 11.8); anxiety control (AC) 34 years (SD = 12.2); and non-clinical control (NCC) 38 years (SD = 12). The three groups did not differ on age, $F(2, 42) = 1.51$, $p > .05$; or education, $F(2, 42) = 1.77$, $p > .05$. The persecutory delusion group had been ill for significantly longer that the anxiety control group, $t(28) = -2.60$, $p < .01$ (PD, mean = 19 years [SD = 10.1]; AC, mean = 10 years [SD = 8.7]).

Descriptive Measures

There was a significant difference between the three groups on their depression scores, $F(2, 41) = 10.99$, $p < .01$. The PD and AC groups did not differ from each other but both clinical groups scored significantly higher than the NCC group on depression: PD vs NCC, $t(19.19) = 4.13$, $p < .01$; AC vs NCC, $t(18.04) = 4.50$, $p < .01$. There was a significant difference between the three groups on their state anxiety scores, $F(2, 41) = 10.94$, $p < .01$. The PD and AC groups did

not differ from each other but both clinical groups scored significantly higher than the NCC group on state anxiety: PD vs NCC, t (27) = 4.56, $p < .01$; AC vs NCC, t (28) = 3.86, $p < .01$. There was also a significant difference between the three groups on their trait anxiety scores, F (2, 41) = 38.40, $p < .01$. Again, the PD and AC groups did not differ from each other but both clinical groups scored significantly higher than the NCC group on trait anxiety: PD vs NCC, t (27) = 7.62, $p < .05$; AC vs NCC, t (28) = 7.36, $p < 0.01$.

Table 1

Mean Depression and Anxiety Scores

Mean (SD)	*PD (n = 14)*	*AC (n = 15)*	*NCC (n = 15)*
BDI-II	14.4 (8.5)	18.2 (11.4)	3.9 (4.4)
STAI State	41.7 (10.7)	39.1 (10.7)	26.0 (7.7)
STAI Trait	51.2 (6.5)	53.6 (9.3)	29.5 (8.6)

Safety Behaviours

The SASBQ produces two scores: one for social avoidance; and one for safety behaviours. The two sub-scales were analysed using separate one way ANOVAs. In order to control for Type I errors, a Bonferroni corrected alpha of .025 ($^{.05}/_{2}$) was used. There were significant differences between the three groups on the social avoidance sub-scale, F (2, 40) = 15.04, $p < .01$ and on the safety behaviours sub-scale, F (2, 40) = 10.45, $p < .01$. The two clinical groups did not differ significantly from each other either on the social avoidance or on the safety

behaviours subscales but both groups scored significantly higher than the NCC group: PD vs NCC on social avoidance, t (19.67) = 4.79, $p < .01$; and on safety behaviours, t (26) = 4.29, $p < .01$. AC vs NCC on social avoidance, t (28) = 4.27, $p < .01$; and on safety behaviours t (28) = 2.87, $p < .01$.

Details of Threat

Item 1 identifies a threat belief. Items 5 and 6 ask when and where harm is likely to occur. Items 2 ("..who is going to harm you"), 3 ('..heard or seen the persecutor') , 4 ("..persecutor taken control of your actions or thoughts..."), and 9 ("....powerful is the person...") were omitted from the analyses as they were only relevant to the persecutory delusion group. Responses to items 7, 8, 10, 11, 12, 13, 14 and 15 were subjected to statistical analyses for the three groups. These analyses are reported below.

Nature of threat belief (item 1). Appendixes L, M and N summarise the threat that was identified by participants as especially worrying to them.

Time spent worrying (item 7). Time spent worrying was reported in minutes. There was a significant difference between the three groups: F (2, 38) = 39.78, $p < .01$ (mean: PD = 320.00 [SD: 304.15]; AC = 444.00 [453.44]; NCC = 11.53 [SD: 16.67]). The PD and AC groups did not differ from each other but both clinical groups worried significantly more than the NCC group: PD vs NCC, t (24) = 7.13, $p < .01$; AC vs NCC, t (27) = 7.71, $p < .01$.

Strength of belief (item 8). Strength of belief was reported as a percentage. There was a significant difference between the three groups: F (2, 38) = 3.40, $p < .05$

(mean: PD = 53.55 [SD 38.23]; AC = 60.33 [SD 39.80]; NCC = 28.07 [SD 27.69]). The PD and AC groups did not differ from each other but the AC group endorsed greater conviction in their belief than the NCC group: AC vs NCC, t (28) = 2.58, $p < .05$. The difference between the PD group and the NCC group indicated a trend that approached significance: PD vs NCC t (24) = 1.98, $p = .06$.

Awfulness (item 10). There was no significant difference between the three groups on their ratings of how awful the threat would be should it occur, F (2, 40) = 0.81, $p > .05$.

Ability to cope (item 11). There was a significant difference between the three groups on how they rated their perceived ability to cope should the threat occur, F (2, 39) = 14.08, $p < .01$. The PD and AC groups did not differ from each other but both clinical groups scored significantly lower than the NCC group: PD vs NCC, t (18.28) = -4.53, $p < .01$; AC vs NCC, t (28) = -4.90, $p < .01$.

Deserving (item 12). There was no significant difference between the three groups on their ratings of whether they believed that they deserved to be harmed, F (2, 11) = 1.03, $p > .05$.

Fairness (item 13). There was a significant difference between the three groups on their ratings of whether they perceived the threat as fair, F (2, 39) = 11.70, $p < .01$. The PD and AC groups did not differ from each other but both clinical groups rated it significantly more unfair than the NCC group: PD vs NCC, t (25) = 5.12, $p < .01$; AC vs NCC, t (28) = 3.68, $p < .01$.

Outside factors (item 14). There was no significant difference between the three groups on their ratings of whether they were likely to be rescued by outside factors, F, (2, 39) = 1.29, $p > .05$.

Control (item 15). There was no significant difference between the three groups on their perceptions of control over the situation, F (2, 39) = 3.11, $p > .01$.

Table 2 shows the means and standard deviations on a rating scale from 0-10 for awfulness should the feared event occur, beliefs about coping in such an event, whether the harm is deserved, whether the harm is fair, the likelihood of being rescued by external factors, and degree of control.

Table 2

Mean (SD) Awfulness, Deserving, Coping, Fairness, Outside Factors and Control Scores

Mean (SD)	*PD* *n=12*	*AC* *n=15*	*NCC* *n=15*
Awfulness	8.67 (1.67)	8.93 (1.71)	7.14 (2.60)
Coping	2.75 (2.80)	3.0 (2.56)	7.00 (1.85)
Deserving	2.75 (3.96)	0.67 (1.59)	1.33 (2.26)
Fairness	7.83 (2.13)	7.27 (3.67)	2.93 (2.71)
Outside factors	4.00 (3.38)	4.60 (3.20)	5.93 (3.17)
Control	3.17 (3.21)	3.27 (2.76)	5.60 (2.95)

Safety Behaviours Questionnaire (SBQ)

The following data analyses compare the persecutory delusion group and the anxiety control group only.

Items 1 (avoidance), 2 (in-situation) and 3 (escape) on the SBQ were applicable to both groups and were totalled to give a frequency rating for the use of safety behaviours as described by Freeman et al., (2001). Items 4 (compliance with persecutor) and 6 (aggression toward persecutor) were not relevant to the anxiety control group so were not analysed. Item 5 (seeking help from others) could not be analysed as only three participants in the persecutory delusion group endorsed this as an option.

There were no significant differences between the two clinical groups on their reported use of safety behaviours.

Table 3 shows the means and standard deviations on a rating scale from 0-10 for use of avoidance, in-situation and escape behaviours as well as the total use of safety behaviours.

Table 3

Frequency of Use of Safety Behaviours

Mean (SD)	*PD (n = 12)*	*AC (n = 15)*	*t (df)*	*p*
Total SBQ	6.17 (3.88)	7.20 (3.39)	0.74 (25)	.47
Avoidance	2.08 (1.83)	2.87 (1.30)	1.30 (25)	.21
In-situation	2.17 (1.95)	2.80 (1.42)	0.94 (19.62)	.36
Escape	1.92 (1.88)	1.53 (1.46)	-0.58 (20.41)	.57

Perceived Effectiveness of Safety Behaviours (item A), Control of the Situation (item B) and Success of Rescue Factors (item D)

Participants endorsed three 0-10 rating scales that measured how successful they believed the use of safety behaviours were in reducing the chance of threat, how much control they had over the situation, and their perceptions about the probability of being successfully rescued by factors outside of their control. There were no significant differences between the two clinical groups on their ratings of how effective they believed the use of safety behaviours to be or on how much control they perceived themselves to have over the situation. There was a significant difference between the two groups in their perceptions of being successfully rescued by external factors (t [18] $= 2.47$, $p < .05$), with the persecutory delusion group rating it as less likely than the anxiety disorder group . The rescue factors variable was then reanalysed using an ANCOVA entering duration of illness as a covariate.

The difference between the two clinical groups on rescue factors remained significant, $F(1, 17) = 4.61, p < .05$.

Table 4

Mean Effectiveness of Safety Behaviours, Control of the Situation and Success of Rescue Factors.

Mean (SD)	*PD (n = 12)*	*AC (n = 15)*	*t (df)*	*p*
Successfulness	5.58 (4.10)	5.27 (2.46)	-0.24 (17.15)	.82
Control	3.92 (3.32)	4.40 (3.07)	0.39 (25)	.70
Rescue factors[a]	4.00 (2.97)	6.67 (1.88)	2.47 (18)	.02[b]

[a] Only rated if participants answered 'yes' to believing there were rescue factors (item C): persecutory delusion group n = 8 and anxiety control group n = 12)
[b] significant at $p < .05$

Cognitive Strategies

There was no significant difference between the three groups on their total scores on the TCQ, $F(2, 40) = 0.81, p > .05$. The TCQ's five sub-scales were also analysed using separate one way ANOVAs. In order to control for Type I errors, a Bonferroni corrected alpha value of .01 ($^{.05}/_{5}$) was used. There were no differences on the Distraction, $F(2, 40) = 3.25, p > .01$; Social, $F(2, 40) = 0.08, p > .01$; or Reappraisal, $F(2, 40) = 0.43, p > .01$, sub-scales. However, there were significant differences on the Worry, $F(2, 40) = 11.58, p < .01$ and Punishment, $F(2, 40) = 6.28, p < .01$ subscales. The two clinical groups did not differ from each other but both scored significantly higher than the NCC group on Worry: PD vs NCC, $t(26) = 4.07, p < .05$; AC vs NCC, $t(28) = 4.22, p < .05$. The same pattern

occurred for Punishment: PD vs NCC, t (17.26) = 2.28, $p < .05$; AC vs NCC, t (20.99) = 3.82, $p < .05$. There was a significant difference between the three groups on their ACQ scores, F (2, 40) = 51.32, $p < .01$. The PD and AC groups did not differ from each other but both clinical groups scored significantly lower than the NCC group on anxiety control: PD vs NCC, t (26) = -7.60, $p < .01$; AC vs NCC, t (28) = -9.31, $p < .01$.

Table 5

Mean SASBQ, TCQ and ACQ Scores

Mean (SD)	*PD (n = 13)*	*AC (n = 15)*	*NCC (n = 15)*
SASBQ			
Social avoidance	27.38 (6.74)	23.53 (4.14)	17.00 (4.24)
Safety behaviours	56.92 (11.24)	49.60 (8.68)	40.07 (9.58)
Total TCQ	62.15 (10.21)	63.13 (8.55)	59.07 (8.65)
Distraction	13.15 (3.63)	12.80 (2.51)	15.87 (4.36)
Social	12.69 (4.35)	13.13 (4.31)	12.53 (4.27)
Worry	11.62 (2.06)	12.13 (2.75)	8.20 (2.34)
Punishment	10.62 (3.36)	11.93 (3.31)	8.27 (1.71)
Re-appraisal	14.08 (3.68)	13.13 (2.26)	14.20 (4.11)
Total ACQ	63.62 (18.33)	59.80 (14.48)	118.53 (19.68)

Discussion

The aims of this study were firstly, to replicate Freeman et al.'s, (2001) results which had shown that individuals with persecutory delusions use safety behaviours in response to threat and to compare the use of safety behaviours in this group with anxiety and non-clinical control groups. Secondly to investigate perceptions about the effectiveness of safety behaviours, which included any differences between the three groups in their perceptions of the likelihood of being rescued by external factors. Thirdly, to ascertain whether the three groups differed in their use of cognitive strategies in response to unpleasant thoughts and emotional reactions.

The results replicated Freeman et al.'s, (2001) findings and confirmed that individuals with persecutory delusions use safety behaviours to cope with perceived threat. It also supported the predictions of Freeman et al.'s, (2002) cognitive model that safety behaviours are used by individuals with persecutory delusions to a similar degree and largely with the same function as individuals with anxiety disorders. Further support for Freeman et al.'s, (2002) proposal that safety behaviours have the same role and function in persecutory delusions as in anxiety disorders, came from the findings on the SASBQ. Both clinical groups reported significantly greater social avoidance and more safety behaviours than the non-clinical group.

Three items on the SBQ assessed perceived effectiveness of the use of safety behaviours, perceived control over the situation, and the likelihood of being successfully rescued by outside factors. Interestingly, the two clinical groups perceived the effectiveness of safety behaviours and degree of control over a feared

situation in largely similar terms. This provided further support for the conceptualisation of persecutory delusions as threat beliefs that are maintained by the same or similar processes as those that maintain anxiety disorders. However, the two clinical groups did differ in how much they believed that they would be successfully rescued by outside factors. The anxiety disorder group rated this as more likely than the persecutory delusion group. Duration of illness did not affect this result. There may be a variety of explanations for this finding. It is possible that it reflects a genuine lack of social support in a marginalised group in society. Repeated hospital admissions, families being unable to cope, and the co-morbid symptoms of the illness may mean that individuals with persecutory delusions frequently become isolated. What is known is that faith in rescue factors is significant to the conceptualisation of anxiety disorders. Anxiety results from the perceived probability of threat and how awful the threat would be, together with an individual's perceived ability to cope with the threat, should it occur (Beck et al., 1985). Perceptions about coping are affected by perceptions about rescue factors which have been found to reduce perceptions of threat (Chambless & Goldstein, 1982). In the persecutory delusions group it is possible that perceptions of threat are exacerbated because they have relatively little faith in the possibility of being rescued and this may compromise their ability to cope. Nevertheless, a cautionary word is needed in interpreting the results about rescue factors. The DoT was administered to ascertain details of the threat belief in order to administer the SBQ and explore safety behaviours. However, the two interview schedules contained some similar items, for example, the DoT (item 14) asked:

"How likely is it that factors beyond your control could lead to you being rescued from this harm/thing that worries you, for example, something to do with the person/thing trying to harm you or something to do with other people/things that may result in the threat not occurring?"; whereas, the SBQ (item C) asked,

"Are there any factors that are beyond your control that may rescue you from the harm/thing that worries you .."; and, in the event of participants answering 'yes' to item C, item D asked,

"Overall, how successful do you think these rescue factors may be?" – participants were then asked to rate from 0 (not successful) to 10 (totally successful).

This study found no significant difference between the two clinical groups on their response to item 14 on the DoT, suggesting both groups rated the likelihood of rescue factors similarly. However, the significant difference between the two clinical groups was on their response to item D on the SBQ, which asked how successful these rescue factors might be. At the time of administration, it was observed that participants found item 14 on the DoT difficult to understand, whereas item D on the SBQ was short and easier to understand. Nevertheless, the discrepancy between the two sets of results means that we should be cautious about drawing firm conclusions or the exact role of rescue factors in persecutory delusions.

In addition to safety behaviours, conceptualising persecutory delusions as threat beliefs led to the suggestion that the two clinical groups would use a variety of

dysfunctional cognitive control strategies. In this study, the persecutory delusion and anxiety control groups showed a similar pattern in their use of cognitive strategies, which was significantly different to the non-clinical control group. The clinical groups endorsed using more 'worry' and 'punishment' strategies to control unwanted thoughts and fewer anxiety control techniques than the non-clinical group. Worry strategies were measured by individuals endorsing items that suggested they replaced an unpleasant/unwanted thought with a different worry thought, for example, "I dwell on other worries", or "I worry about more minor things instead". Using a lesser worry to displace a more severe worry can be seen as a dysfunctional avoidance strategy because it does not resolve the more major worry and the presence of constant minor worrying thoughts may reinforce persistent feelings of anxiety.

The use of punishment strategies was measured by items which suggested that individuals responded to unpleasant/unwanted thoughts with chastisement, for example, "I punish myself for thinking the thought", or "I slap or pinch myself to stop the thought". Again, this strategy is unlikely to be helpful because it may reinforce a negative view of the self as guilty or worthless and, therefore, deserving of punishment. The findings that both clinical groups use similar cognitive control strategies lend further support to Freeman et al.'s, (2002) argument that models of anxiety disorders can be applied to help us to understand the formation and maintenance of persecutory delusions.

While not central to the aims of this research, further support for the role of anxiety in persecutory delusions are some of the results from the DoT. The three groups did not differ on how awful it would be if the feared event occurred.

However, the two clinical groups believed that they would be less able to cope with the threat than the non-clinical control group and, as stated earlier, perceptions about coping affect levels of distress (Beck et al., 1985). A further difference between the groups identified by the DoT was on the measure of how fair it was that they were under threat. The two clinical groups rated it as more unfair than the non-clinical group. This is interesting considering that the persecutory delusion and anxiety control groups are more likely to use self-punishment strategies to control the threat.

Taken together, the results of this study provide support for one aspect of Freeman et al.'s, (2002) multifactorial model of the maintenance of persecutory delusions, namely the use and function of safety behaviours. The study extended Freeman et al.'s, (2001) findings by including an anxiety disorder control group and a non-clinical control group. As the model predicts, both clinical groups used safety behaviours to a similar extent and perceived the function of safety behaviours in similar terms. However, they differed in their perceptions of potential rescue factors. Freeman et al.'s, (2002) model does not incorporate an explanation for this difference and further investigation of the relationship between perceptions of threat and perceptions of ability to cope in psychosis is needed. If this finding is replicated it could have important clinical implications.

This study suggests that persecutory delusions and anxiety disorders have some commonalities. Both are driven by beliefs about threat and individuals appear to respond to these beliefs by using safety behaviours. It is also reasonable to suggest that the use of safety behaviours prevents the individual from processing disconfirmatory evidence about their belief and thus safety behaviours act as a

maintaining factor. The evidence is less clear as to the differences between the two clinical groups.

In incorporating the role of safety behaviours in their model, Freeman et al., (2002) have applied a top-down approach to the study of persecutory delusions. They have applied a theory drawn from the anxiety literature onto their model of persecutory delusions. On the one hand, this shows integrity in transferring knowledge about psychological processes in anxiety to psychosis. On the other hand, it increases the risk of missing what may be important qualitative differences between individuals with persecutory delusions and those with anxiety disorders. For example, it is generally recognised that individuals with anxiety disorders are able to acknowledge that there is an irrational component to their fears. This is not necessarily the case in individuals with persecutory delusions. The authors do not account for this in their model (Freeman et al., 2002). A further difference which may be significant is in symptomatology. For example, it is known that in response to threat, individuals with panic disorder typically report symptoms such as a racing heart, sweaty palms, and racing thoughts. Less is understood about the anxiety reaction to threat in persecutory delusions. A bottom-up approach, such as a detailed qualitative analysis of the phenomena and responses to threat, might reveal some important differences between the two clinical groups not considered.

The current study does have some potential limitations. The DoT and SBQ were designed for use with individuals with persecutory delusions. While it became apparent that the SBQ could not be used with the non-clinical control group, it is also possible that the adaptations compromised its validity with the anxiety group. The

design would have benefited from collecting inter-rater reliability data. While Bonferroni corrections were made to the results of established questionnaires, these were not applied to the items on the semi-structured interview schedules. This was because the nature of investigation was essentially exploratory and the *p* value was not adjusted in order to avoid Type II errors. That said, the majority of significant differences between the clinical groups and the non-clinical control group on the DoT were at a 99% CI. There was only one significant difference between the two clinical groups across both schedules that was reported at a 95% CI (rescue factors). To date, little data have been collected on perceptions about rescue factors in persecutory delusions. Freeman et al., (2001) did investigate the concept in the only published study but they did not include a control group. The mean scores on this item differed from the Freeman et al.'s, (2001) study by more than one standard deviation. While this may be a chance finding it may be the result of subtle differences in the administration of the semi-structured interview schedules. The finding would need to be replicated to establish its validity.

Freeman et al.'s, (2001) model has successfully identified the use of safety behaviours preventing disconfirmatory evidence from being processed by individuals with persecutory delusions. The authors have also rightly included perceptions about rescue factors acting as covert safety behaviours. However, the model takes no account of the potential interaction between perceptions about rescue factors and coping. This has important treatment implications. In their 2001 paper, Freeman et al., suggested that targeting safety behaviours in therapy might lead to a change in delusional conviction. However, perceptions about the ability to cope are integral to an individual's beliefs about self-efficacy. The difference between the two clinical

groups in their perception of successful rescue factors suggests that the anxiety disorder group might have a stronger belief in their ability to cope and might be more likely to contemplate change because they can imagine succeeding. Equally, it suggests that beliefs about ability to cope in individuals with persecutory delusions could be adversely affected by their lack of belief in rescue factors. This could also have an impact on therapy because it might influence individuals' perceptions about the therapist's ability to help.

To date, the evidence that individuals with persecutory delusions use safety behaviours has only been found in one previous study. Therefore it is important to be cautious about recommending that safety behaviours should be targeted in the treatment of persecutory delusions. Further investigation of the similarities and differences in the use and function of safety behaviours in persecutory delusions and in anxiety disorders is needed. In particular, a clearer knowledge of the symptoms unique to persecutory delusions when anxiety levels are elevated, such as an increase in hallucinatory voices, would need to be clearly identified (Slade, 1976). It is not suggested that targeting safety behaviours as a goal of therapy should be rejected outrightly, but that it should be approached cautiously. Thus, a clearer understanding about the role of safety behaviours and individuals perceptions about their effectiveness is required. This could be achieved through laboratory experiments in which safety behaviours were manipulated. That said, it is acknowledged that this type of work raises a number of complex ethical issues. Carefully designed single-case studies might also help to identify effective treatment strategies that target safety behaviours.

To conclude, this study has taken one component of a complex model in considered the role of safety behaviours in persecutory delusions. It has replicated and expanded previous findings, providing support for Freeman et al.'s, (2002) cognitive model. In conceptualising persecutory delusions as threat beliefs, there is some evidence for the hypothesis that anxiety plays a part in their maintenance (Freeman et al., 2002). However, the precise mediating role of safety behaviours cannot be determined from these findings and neither can they explain the role of anxiety in the formation of persecutory delusions. Persecutory delusions and the debilitating effect they have on an individual's life remain under-researched. Further research with the ultimate aim of developing effective treatment approaches is essential.

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List of Appendixes

Appendix A: Guide for Authors: Literature Review

Clinical Psychology Review

Guide for Authors

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Behaviour Research and Therapy

Guide for Authors

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should be given separate numbering: (Eq. A.1), (Eq. A.2), etc.; in a subsequent appendix, (Eq. B.1) and so forth.

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Figure legends, tables, figures, schemes. Present these, in this order, at the end of the article. They are described in more detail below. High-resolution graphics files must always be provided separate from the main text file (see Preparation of illustrations).

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Examples: Reference to a journal publication: Van der Geer, J., Hanraads, J. A. J., & Lupton R. A. (2000). The art of writing a scientific article. Journal of Scientific Communications, 163, 51-59.

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Appendix D: Details of threat interview - Revised

This interview has a number of questions about the harm that you believe is going to happen or is happening.

1. Is there something which especially worries you eg threat from other people, going out, money etc? – if none do not complete ie non-clinical control group.
   What exactly is the type of harm/worry that you expect to happen or that is happening (i.e. what is the threat)?

   .....

   .....

   .....

   .....

   [*Please make assignment to threat belief category on the basis of this question.*
   Potential probes: "Is it making others think badly of you?" (social threat); "Is it causing you to feel distressed or unwell in your mind?" (psychological threat); "Is it causing you bodily injury?" (physical threat).]
   [If more than one belief identified, please classify on the basis of the most prominent belief, but note below the other beliefs:]

.....

.....

.....

.....

.....

2. [If it is a person,] Do you know who it is that is trying to harm you? Yes / Maybe / No (Please circle).
   If your answer was 'yes' or 'maybe', who do you think it might be .....
   .....

   .....

3 [If it is a person] Have you heard or seen the persecutor?
Heard: Never / In past / Currently (in last month) (Please circle)
Seen: Never / In past / Currently (in last month) (Please circle)

[*Please rate whether or not these were anomalous experiences:*
Voices: Yes/No Visions: Yes/No]

4 [If it is a person] Has the persecutor taken control of your actions or thoughts in some way? Never / In past / Currently (in last month) (Please circle)

If yes please specify what the control was:

.....

.....

5 When do you think the harm/thing that worries you is most likely to happen? Please circle one of the time periods below:

It has been happening recently/0 to 7 days /1week to1month/1month to 6 months /6 months or longer

6 Where will the harm/thing that worries you most likely occur? Please circle one of the options:

Inside my home / Outside my home / Both in or outside of my home

7 In the 24 hours of a day, how many of these hours are you under threat/worried? _____

8 How sure are you that the harm/worry is happening? Please give a percentage estimate of the strength of your belief (0-100%) _____

[*For the next 7 questions please place the rating scale of 1 – 10 in front of the patient. For each separate question place the appropriate labels at each end of the scale*]

9 [If it is a person] How powerful is the person(s) trying to harm you? Please circle a number below:

No power 0 1 2 3 4 5 6 7 8 9 10 Extremely powerful

10 If the threat/worry did happen, how awful would it be? Please circle a number below:

Not awful 0 1 2 3 4 5 6 7 8 9 10 Extremely awful

11 How well would you cope if the threat/worry did occur? Please circle a number below:

Could not Cope at all 0 1 2 3 4 5 6 7 8 9 10 Would cope extremely well

12 Sometimes people who think harm/the thing that worries them is going to happen think that they may deserve this harm/thing. Do you feel as if you deserve to be harmed/this thing to happen in the way you have talked about? Please circle a number below:

Not at all deserved 0 1 2 3 4 5 6 7 8 9 10 Totally deserved

13 How unfair is it that this is occurring to you? Please circle a number below:

Not at all unfair 0 1 2 3 4 5 6 7 8 9 10 Extremely unfair

14 How likely is it that factors beyond your control could lead to you being rescued from this harm/thing that worries you? for example, something to do with the person/thing trying to harm /that worries you or something to do with other people/things that may result in the

threat not occurring. Please circle a number below:

Not at all likely	0	1	2	3	4	5	6	7	8	9	10 Extremely likely

15 Overall, how much control do you have over the situation? Please circle a number below:

No Control	0	1	2	3	4	5	6	7	8	9	10 Total control

Appendix E: Safety Behaviours Questionnaire

THE SAFETY BEHAVIOURS QUESTIONNAIRE – PERSECUTORY BELIEFS (SBQ)

'I would now like to ask you, in some detail, about any actions or behaviours that you may do to try to minimise or stop the threat/thing that worries you from occurring; often we find that individuals who feel threatened do things that they think will provide some protection. All my questions will relate to the past month.'

Initial probe: **'In the last month, have you done anything to try to minimise, reduce, or prevent the threat/thing that worries you from occurring?'** YES / NO If Yes, please note actions and frequencies

.....
.....
.....
.....

For scoring purposes, behaviours reported above should be classified into one of the categories below (i.e. Avoidance, In-Situation, Escape, Compliance, Help, Aggression, or Delusional)

Note: If at any stage of the interview it is unclear how a behaviour reduces threat, then the individual should be asked: 'How does that reduce or prevent the threat from occurring?'

'That was a very general question. I'd now like to ask some more specific questions.'

1. Avoidance: **'Sometimes, people who feel threatened avoid situations or activities in order to reduce the chances of the threat/thing that worries them occurring. In the last month, have you avoided anything in order to reduce the threat?'** YES / NO If Yes, please note actions and frequencies

.....
.....
.....
.....

'Just to be sure we haven't missed anything, I'm going to read a list of situations out loud to you. Do you avoid any of the following':

		Frequency
Shops	Yes / No	.....
public transport	Yes / No	.....
pubs	Yes / No	.....
restaurants	Yes / No	.....
meeting people or social gatherings	Yes / No	.....
open spaces	Yes / No	.....
enclosed spaces	Yes / No	.....
staying at home alone	Yes / No	.....
Staying at home with others	Yes / No	.....
being far from home	Yes / No	.....
walking on the street	Yes / No	.....
eating or drinking certain items	Yes / No	.....

2a. In-Situation Safety Behaviours: **'There may be times when a person can't avoid being in the very threatening situation/situation that worries them. However, they may still try to do small, or subtle things, to try to minimize the threat. For example, if outside, they might try to be with someone, or keep near an exit, and, if inside, they might not answer the front door, or keep the curtains drawn or check the locks. They may also try to be very vigilant for threat. When you are in a situation in which you think that threat/thing that worries you is about to occur, do you do anything to reduce the threat?'** YES / NO

If Yes, please note actions and frequencies

.....

.....

.....

.....

.....

2b This question is to be asked if threat is reported as actually happening: 'When harm is happening to you, are there any things that you do to try to lessen the impact?' YES / NO

If Yes, please note actions and frequencies

.....

.....

.....

.....

.....

3. Escape: **'Another thing that people do is to leave a situation if they think that threat/the thing that worries them is very imminent or about to occur, for example, they might rapidly leave a shopping centre if they see someone they think is about to harm them/something that is going to cause them distress. In the last month, have you quickly left a situation to avoid the threat?'** YES / NO If Yes, please note actions and frequencies

.....

.....

.....

.....

If a response is given then ask about cues: 'What made you think that threat/**the thing that worries you** was about to occur then?'.....

.....

4. [If the threat is from a person] *Compliance with persecutor's demands/wishes*: **'To reduce the chances of threat occurring, people may sometimes comply with, or give in to, the demands or wishes of the person who is trying to harm them. Do you do things to satisfy the person who is trying to harm you, in order to reduce the threat?'** YES / NO If Yes, please note actions and frequencies

.....

.....

.....

.....

5. Getting help from others: **'Occasionally, a person may try to get the help of others in reducing the threat/chance of the thing that worries them from occurring, for example, asking friends to help or contacting the police or solicitors. In the last month, have you tried to enlist the help of anyone in reducing the threat?'** YES / NO If Yes, please note actions and frequencies

.....
.....
.....

6. [If the threat is from a person] *Aggression*: **'Lastly, people sometimes have tried to confront, or go up to, the person they think is trying to harm them - have you done that in the last month?'** YES / NO
If Yes, please note actions and frequencies

.....
.....
.....

7. Delusional actions (no question to be asked): Interviewer to list here any behaviours that are regarded by the person as reducing the likelihood of the threat, but that do not fit into any of the above categories and seem not to reduce threat in any understandable way. .....
.....
.....
.....

Perceived effectiveness of safety-behaviours, control of the situation, and rescue factors:

A. **'Overall, how successful do you believe are these actions in reducing the threat/thing that worries you from occurring? Please chose a number between 0 (not at all successful) and 10 (extremely successful).'** _____

B. **'Overall, how much control do you have over the situation? Please chose a number between 0 (no control) and 10 (total control).'** _____

C. **'Are there any factors that are beyond your control that may rescue you from the harm/thing that worries you? - for example, something to do with the person trying to harm you/thing that worries you or something to do with other people that may result in the threat not occurring'** YES / NO If Yes, please note details

.....
.....
.....
.....

D. **'Overall, how successful do you think these rescue factors may be? Please chose a number between 0 (not successful) and 10 (totally successful).'** _____

Note: It must be remembered to obtain frequency ratings of the safety-behaviours. A card listing the frequency categories can be placed in front of the person:
Frequency of action. Please choose a number for how often the action occurred in the last month. 1=definitely occurred on at least one occasion, 2=occurred more than once but not frequently (e.g. not more than five times), 3=occurred frequently (eg. at least five times), 4=present more or less continuously (at least every day).

Appendix F: Social Avoidance and Safety Behaviours Questionnaire

Please circle the word which best describes how often you AVOID the situations listed below because of anxiety.

Talking	Never	Sometimes	Often	Always
Being with people	Always	Often	Sometimes	Never
Eating or drinking with other people	Never	Sometimes	Often	Always
Being watched or stared at	Always	Often	Sometimes	Never
Talking to people in authority	Never	Sometimes	Often	Always
Being criticised	Always	Often	Sometimes	Never
Speaking or acting to an audience	Never	Sometimes	Often	Always
Going to parties	Always	Often	Sometimes	Never
Going to the cinema	Never	Sometimes	Often	Always
Being teased	Always	Often	Sometimes	Never
Entering a room where other people are already seated	Never	Sometimes	Often	Always
Using the telephone in front of other people	Always	Often	Sometimes	Never

When you feel anxious in SOCIAL SITUATIONS how often do you do the following things.

Avoid eye contact	Always	Often	Sometimes	Never
Ask lots of questions	Never	Sometimes	Often	Always
Find excuses to leave the room	Always	Often	Sometimes	Never
Drink alcohol	Never	Sometimes	Often	Always
Leave early	Always	Often	Sometimes	Never
Take medication	Never	Sometimes	Often	Always
Avoid talking about yourself	Always	Often	Sometimes	Never
Talk more slowly	Never	Sometimes	Often	Always
Rehearse a list of questions	Always	Often	Sometimes	Never
Plan an escape route	Never	Sometimes	Often	Always
Avoid expressing your opinion	Always	Often	Sometimes	Never
Sit next to someone you feel safe with	Never	Sometimes	Often	Always
Keep near to a door or wall	Always	Often	Sometimes	Never
Say little or nothing	Never	Sometimes	Often	Always
Seek out fresh air	Always	Often	Sometimes	Never
Wait for others to start the conversation	Never	Sometimes	Often	Always
Fidget or fiddle with something	Always	Often	Sometimes	Never
Get something to drink	Never	Sometimes	Often	Always
Refuse to accept food or drink	Always	Often	Sometimes	Never
Avoid getting or moving too close to people	Never	Sometimes	Often	Always
Stick with people of the same sex	Always	Often	Sometimes	Never
Make sure you're not left alone with someone	Never	Sometimes	Often	Always
Avoid using your hands	Always	Often	Sometimes	Never
Avoid anyone attractive	Never	Sometimes	Often	Always
Try not to attract attention	Always	Often	Sometimes	Never

Appendix G: Thought Control Questionnaire

Thought Control Questionnaire (TCQ)

Most people experience unpleasant, and/or unwanted thoughts (in verbal and/or picture form) which can be difficult to control. We are interested in the techniques that you generally use to control such thoughts.

Below are a number of things that people do to control these thoughts. Please read each statement carefully, and indicate how often you use each technique by circling the appropriate number. There are no right or wrong answers. Do not spend too much time thinking about each one.

When I experience an unpleasant/unwanted thought:

	Never	Sometimes	Often	Almost Always
1. I call to mind positive images instead.	1	2	3	4
2. I tell myself not to be so stupid.	1	2	3	4
3. I focus on the thought.	1	2	3	4
4. I replace the thought with a more trivial bad thought.	1	2	3	4
5. I don't talk about the thought to anyone.	1	2	3	4
6. I punish myself for thinking the thought.	1	2	3	4
7. I dwell on other worries.	1	2	3	4
8. I keep the thought to myself.	1	2	3	4
9. I occupy myself with work instead.	1	2	3	4
10. I challenge the thought's validity.	1	2	3	4
11. I get angry at myself for having the thought.	1	2	3	4
12. I avoid discussing the thought.	1	2	3	4
13. I shout at myself for having the thought.	1	2	3	4
14. I analyse the thought rationally.	1	2	3	4
15. I slap or pinch myself to stop the thought.	1	2	3	4
16. I think pleasant thoughts instead.	1	2	3	4
17. I find out how my friends deal with these thoughts.	1	2	3	4
18. I worry about more minor things instead.	1	2	3	4
19. I do something that I enjoy.	1	2	3	4
20. I try to reinterpret the thought.	1	2	3	4
21. I think about something else.	1	2	3	4
22. I think more about the more minor problems I have.	1	2	3	4
23. I try a different way of thinking about it.	1	2	3	4
24. I think about past worries instead.	1	2	3	4
25. I ask my friends if they have similar thoughts.	1	2	3	4
26. I focus on different negative thoughts.	1	2	3	4

	Never	Sometimes	Often	Almost Always
27. I question the reasons for having the thought.	1	2	3	4
28. I tell myself that something bad will happen if I think the thought.	1	2	3	4
29. I talk to a friend about the thought.	1	2	3	4
30. I keep myself busy.	1	2	3	4

APPENDIX

Appendix H: Anxiety Control Questionnaire

Anxiety Control Questionnaire (ACQ)

Listed below are a number of statements describing a set of beliefs. Please read each statement carefully and, on the 0–5 scale below, indicate how much you think each statement is typical of you.

0	1	2	3	4	5
Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

_____ 1. I am usually able to avoid threat quite easily.

_____ 2. How well I cope with difficult situations depends on whether I have outside help.

_____ 3. When I am put under stress, I am likely to lose control.

_____ 4. I can usually stop my anxiety from showing.

_____ 5. When I am frightened by something, there is generally nothing I can do.

_____ 6. My emotions seem to have a life of their own.

_____ 7. There is little I can do to influence people's judgments of me.

_____ 8. Whether I can successfully escape a frightening situation is always a matter of chance with me.

_____ 9. I often shake uncontrollably.

_____ 10. I can usually put worrisome thoughts out of my mind easily.

_____ 11. When I am in a stressful situation, I am able to stop myself from breathing too hard.

_____ 12. I can usually influence the degree to which a situation is potentially threatening to me.

_____ 13. I am able to control my level of anxiety.

_____ 14. There is little I can do to change frightening events.

_____ 15. The extent to which a difficult situation resolves itself has nothing to do with my actions.

_____ 16. If something is going to hurt me, it will happen no matter what I do.

_____ 17. I can usually relax when I want.

_____ 18. When I am under stress, I am not always sure how I will react.

_____ 19. I can usually make sure people like me if I work at it.

_____ 20. Most events that make me anxious are outside my control.

_____ 21. I always know exactly how I will react to difficult situations.

_____ 22. I am unconcerned if I become anxious in a difficult situation, because I am confident in my ability to cope with my symptoms.

_____ 23. What people think of me is largely outside of my control.

_____ 24. I usually find it hard to deal with difficult problems.

_____ 25. When I hear someone has a serious illness, I worry that I am next.

_____ 26. When I am anxious, I find it hard to focus on anything other than my anxiety.

_____ 27. I am able to cope as effectively with unexpected anxiety as I am with anxiety that I expect to occur.

0	1	2	3	4	5
Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

_____ 28. I sometimes think, "Why even bother to try coping with my anxiety when nothing I do seems to affect how frequently or intensely I experience it?"

_____ 29. I often have the ability to get along with "difficult" people.

_____ 30. I will avoid conflict due to my inability to successfully resolve it.

Appendix I: LREC Approval

NHS

Dorset Local Research Ethics Committee (LREC)

Poole Hospital NHS Trust
D Block [Eddie Hawker Wing], Room 20
Longfleet Road
Poole, Dorset
BH15 2JB

Tel: 01202 448 201
Fax: 01202 442 954

Our Ref : LREC 881/03/B

1 November 2003

Ms Kim Jolliffe,
Trainee Clinical Psychologist
Dorset Healthcare NHS Trust
Hahnemann House
Hahnemann Road
Bournemouth BH2 5JW

Dear Ms Jolliffe

LREC 881/93/B
An investigation of the role of anxiety and safety behaviours in the cognitive model of psychosis

FOSTA granted 29 August 2003
Revised GP Letter – Appendix G
All comments answered.

The Dorset Local Research Ethics Committee, at its meeting on 30 October 2003, considered the amendments submitted in response to the Committee's earlier review of your application on 29 August, 2003 as set out in our letter dated 29 August, 2003. The documents reviewed were as follows:

Letter dated 7 October 2003

The members of the Committee present agreed that there is no objection on ethical grounds to the proposed study. I am therefore, happy to give you the favourable opinion of the Committee on the understanding that you will follow the conditions set out below:

- You do not recruit any research subjects within a research site unless favourable opinion has been obtained from the relevant Dorset Local Research Ethics Committee.
- You do not undertake this research in an NHS organisation until the relevant NHS management approval has been gained as set out in the Framework for Research Governance in Health and Social Care.
- You do not deviate from, or make changes to, the protocol without prior written approval of the Dorset Local Research Ethics Committee, except where this is necessary to eliminate immediate hazards to research participants or when the change involves only logistical or administrative aspects of the research. In such cases the Dorset Local Research Ethics Committee should be informed within seven days of the implementation of the change.

- You complete and return the standard progress report form to the Dorset Local Research Ethics Committee one-year from the date on this letter and thereafter on an annual basis. This form should also be used to notify the Dorset Local Research Ethics Committee when your research is completed and in this care should be sent to this REC within three months of completion.

- If you decided to terminate this research prematurely you send a report to this Dorset Local Research Ethics Committee within 15 days, indicating the reason for the early termination.

- You advise the Dorset Local Research Ethics Committee of any unusual or unexpected results that raise questions about the safety of the research.

The project must be started within three years of the date on which Dorset Local Research Ethics Committee approval is given.

Present at the Meeting :

S Wheeler, Chair	R Day, Vice Chair	D Jones, Vice Chair	B Quilty
M Leggett	L A Wareing	F Cowdell	B J Waltho
P Leigh			

In Attendance : R Hanson, Administrator
S Goddard, Research Manager [Observer]

Yours sincerely

Rachael Hanson
ADMINISTRATOR
Dorset Local Research Ethics Committee

Dorset HealthCare NHS
NHS Trust

Treatment, Outreach & Rehabilitation Centre
Hahnemann House
Hahnemann Road
Bournemouth
Dorset
BH2 5JW

Tel: 01202 584400
Fax: 01202 584416

February 2004

INFORMATION SHEET

You are being invited to take part in a research study. Before you decide whether to participate it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Thank you for reading this.

Study Title

A STUDY INTO THINGS PEOPLE WORRY ABOUT

What is the purpose of the study?

The purpose of the study is to investigate how individuals manage the anxiety they experience when they fear something bad might happen. The findings will be written up as a doctorate thesis.

Why have I been chosen?

You have been chosen because you are known from your contact with Dorset HealthCare NHS Trust.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect the standard of care you receive.

What will happen to me if I take part?

If you wish to take part, you will be asked to attend an interview. It will take approximately one to one and half hours of your time but there will be room for breaks in between. There will be five structured questionnaires to complete. This will be followed by a semi-structured interview to talk about your personal experiences and things that you regularly worry about.

What are the possible disadvantages and risks of taking part?

The main disadvantage is the risk that the exercise may cause you to become distressed by discussing some of your personal worries. If this happens and you wish to stop the interview, then you are free to do so. However, some people find it helpful to discuss their worries. At the conclusion of the study there will be time to complete a relaxation exercise to help reduce any distress and ensure you do not leave in any way distressed.

What are the possible benefits of taking part?

We hope that the information we obtain from this study will help us to understand more about the different types of worries that people have.

Will my taking part in this study be kept confidential?

The information collected is for research purposes only. All personal information collected about you during the course of this research will be kept strictly confidential. The results of the study will not include any identifying information about individuals.

The research is being conducted by a Trainee Clinical Psychologist (Kim Jolliffe), collaborating with an NHS Clinical Psychologist (Nick Virgo) and two University Lectures (Dr Nick Maguire and Dr Lusia Stopa). These supervisors will keep any information discussed with them entirely confidential.

Your responses will not be shared with your GP, however, he or she will be informed that you are taking part in the study.

What will happen to the results of the study?

No participants will be identified in any reports following the completion of the study. The final results will be available in September 2004.

Who is organising and funding the research?

The University of Southampton is funding the research.

Who has reviewed this study?

Ethics Committee approval has been obtained for this study from Southampton University's Psychology Research Ethics Committee and East Dorset Local Research Ethics Committee.

If you have any questions, please contact:

Kim Jolliffe
Department of Clinical Psychology
University of Southampton
44 Shackleton Building
Highfield
Southampton
S017 1PN (tel: 01202 584400; 023 8059 5321; e-mail kvj101@soton .ac.uk)

Dorset HealthCare NHS
NHS Trust

Treatment, Outreach & Rehabilitation Centre
Hahnemann House
Hahnemann Road
Bournemouth
Dorset
BH2 5JW

Tel: 01202 584400
Fax: 01202 584416

CONSENT FORM

Title of Study A STUDY INTO THINGS PEOPLE WORRY ABOUT

Investigator Kim Jolliffe

Please tick box

1 I confirm that I have read and understand the information sheet dated November 2003 for the above study. ☐

2 I understand that my participation is voluntary and that I am free to withdraw at any time without my medical care or legal rights being affected. ☐

3 I am willing to allow access to my medical records but understand that strict confidentiality will be maintained. ☐

4 I am happy to take part in the study. ☐

Name of patient	Date	Signature
Name of carer	Date	Signature
Researcher	Date	Signature

cc: Carer
Researcher
Hospital notes

Appendix L: Beliefs About Threat (PD Group)

Table L1

Summary of the persecutory delusions group's beliefs about threat taken from information collected on the DoT

Participant No	Belief
1	being stalked by a neighbour who would kill parents if she was to tell anyone about it
2	people want to kill him and voices regularly tell him that they are going to kill him
3	people wishing to harm him and getting at him with fireworks – particularly bad on 5/11 and times of celebrations
4	people he had fallen out with in the past will come and harm him + people reading mind and talking about him
5	being watched by dead people and being punished by God
6	surrounded by dead people who wanted to execute him
7	fear that men (aged 25-40) with shaven heads and new age travellers will beat him up
8	general thoughts and voices about harm
9	being followed and instructed to do things by people form his past
10	others using his mind to talk and people wanting to fight him
11	people generally talking, laughing and ridiculing him
12	Nazis causing world to end and him personally being punished by previous girlfriend who wanted to destroy him
13	INCOMPLETE INFORMATION
14	INCOMPLETE INFORMATION
15	INCOMPLETE INFORMATION

Appendix M: Beliefs about threat (AC Group)

Table M1

Summary of the anxiety disorder group's beliefs about threat taken from information collected on the DoT

Participant No	Belief
1	fear of having a panic attack
2	fear of having a panic attack / fear of dying
3	fear of having a panic attack in situations which were out of her control
4	fear of contracting life threatening disease (e.g. cancer)
5	fear of wetting self (never had wet self)
6	fear of going out and being attacked (PTSD)
7	fear of social situations (being judged negatively by others)
8	fear of social situations
9	fear of social situations (how he comes across to others)
10	fear of having a panic attack / having a heart attack / dying
11	fear of things not being perfect and things going wrong (GAD)
12	fear of having a panic attack
13	fear of social situations / being watched when working (hairdresser) and exhibiting panic symptoms
14	fear of driving any distance, needing toilet & not making it (it had never happened)
15	fear of harming someone (OCD)

Appendix N: Beliefs about threat (NCC Group)

Table N1

Summary of the non-clinical control group's beliefs about threat taken from information collected on the DoT

Participant No	Belief
1	worry about excessive gambling
2	worry about other's driving
3	worry about not being successful, not being comfortable and not having money
4	worry about money
5	worry about owing money and losing everything
6	worry about something happening to the children
7	worry about failing to meet deadlines (self employed publisher)
8	worry about money occasionally
9	worry about situations out of their control/relying on others
10	worry about father's health and him having a heart attack
11	worry about the dark - something happening when it's dark/in the night
12	worry about developing Alzheimer's Disease (in family)
13	worry about parents' health
14	worry about own health – single parent who worried he would not be able to take care of children
15	worry about owing money