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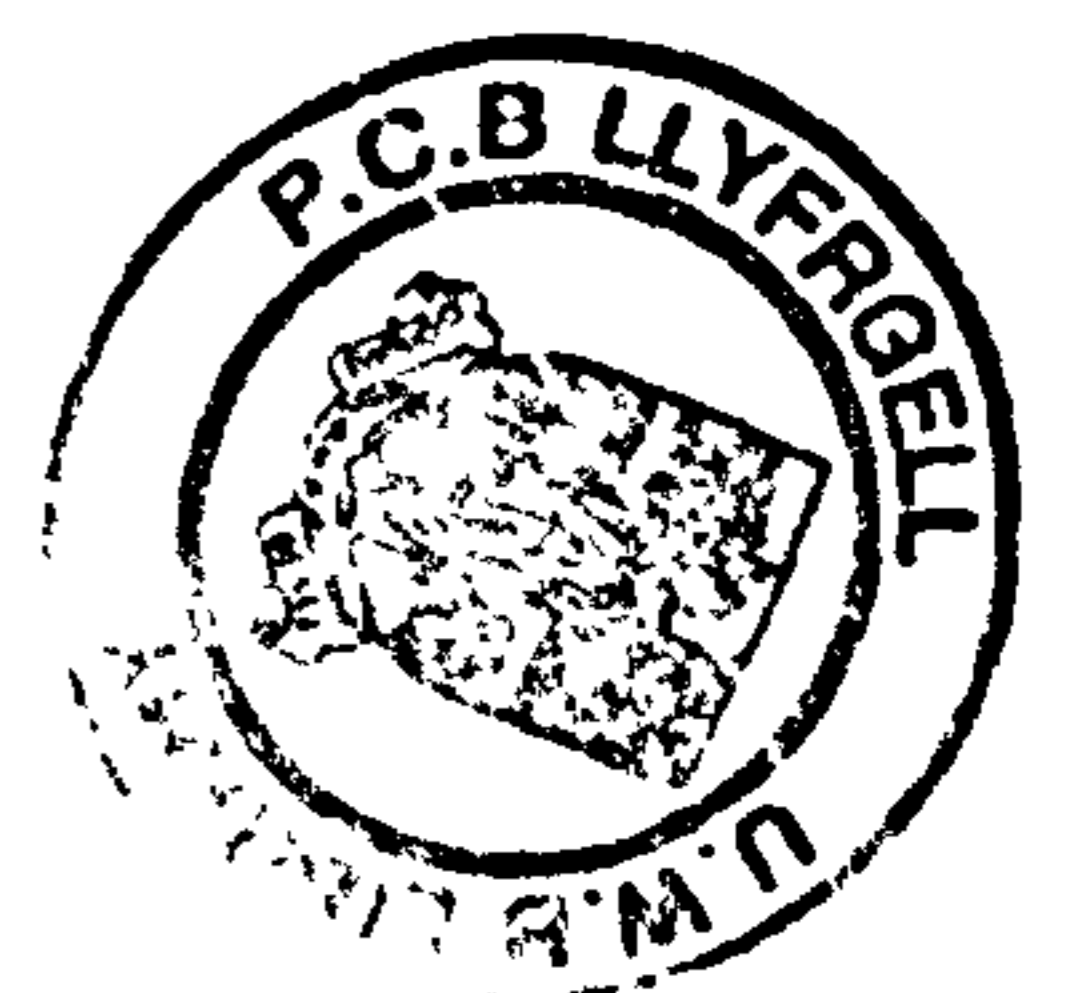
**Self-Esteem and Self-Concept in Individuals with Poor Me and
Bad Me Persecutory Beliefs**

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June 2009



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I would firstly like to thank Dinah Ward, for her ongoing help, support, and fantastic proof-reading, during the making of this thesis. Without her support, this thesis would not have been possible. I would secondly like to thank Cesare Sivo, for all the computer help and the endless cups of tea. Finally, I would like to thank the 36 individuals who took part in the study, their hard work is much appreciated.

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Section 1 – Abstract

1.1 Abstract 4

Self-Esteem and Self-Concept in Individuals with Poor Me and Bad Me Persecutory Beliefs

Background. Persecutory delusions are a common psychiatric symptom, affecting between 50 and 90% of those with psychosis. They are associated with high levels of distress, social isolation and hospitalisation. Psychological theories of persecutory delusions have been developed in order to inform the care of this distressing symptom.

Objectives. The current thesis has two aims. The literature review aims to evaluate two current psychological models of persecutory delusions, namely Daniel Freeman's model, which suggests that anxiety plays a direct causal role in persecutory beliefs, and Richard Bentall's model, which suggests that persecutory delusions are a defence against low self-esteem and depression. The research project aimed to further investigate Richard Bentall's model by looking at patterns of self-esteem in two different types of persecutory delusion: poor me delusions, in which the individual feels that their persecution is not deserved; and bad me delusions, in which the individual feels that their persecution is deserved.

Methods. The literature review comprises a comprehensive review of the literature looking at anxiety, self-esteem and depression in those with persecutory delusions. The research project used a combination of self-report questionnaires and a computer task to measure self-esteem in those with persecutory delusions.

Findings. The literature review outlines high levels of anxiety, depression and low self-esteem in those with persecutory delusions. Little evidence is found to support Freeman's model of persecutory delusions. Some initial evidence however is found

in support of a revised version of Bentall's model. The research project meanwhile found patterns of self-esteem in poor me and bad me delusions that were consistent with Bentall's revised model.

Conclusions. The current thesis outlines support for Bentall's revised model of persecutory delusions. The thesis also outlines need for further research in a number of areas.

Section 2 – Ethics Proposal

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Section 3 – Personal and Process Issues

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Personal and Process Issues arising from Research

During the making of this thesis, I have come across some difficult challenges, frustrations, and feelings of inadequacy; alongside these however there have also been moments of hope, success, and opportunities for learning, which will I hope prove invaluable to me. Below I will attempt to share some of the experiences of making this thesis with the reader.

The first big challenge that I faced in making this thesis related to the ethics applications. In my research timetable, I had allowed six months for this process but in reality it took eight. A School of Psychology ethics application was made in June 2008 and approval was received in July. The NHS ethics application was then made in August 2008, the timing of which was unfortunate due to the summer holidays, and final approval, following an ethics committee meeting in September 2008, was given in October 2008. Whilst I tried to practice acceptance of external factors that I could not influence, and tried to manage my anxiety by focussing on work that I could be doing, I found the process of waiting for ethical approval extremely frustrating. Following a small ethics amendment regarding the project title, data collection eventually started in December 2008, 4 months later than originally planned.

Once data collection started, I came across a number of further challenges. Firstly, the specific client group that I was targeting, namely those with persecutory

delusions, were extremely difficult to recruit. The reasons for this were multiple: many individuals with persecutory delusions are too distressed to take part in research; some did not have the concentration abilities required; other individuals lacked the motivation to take part; some lacked the organisation skills required to attend appointments; some may have been suspicious of the research itself; and finally some willing participants were too well to take part, in that they no longer held persecutory beliefs. For these reasons, many clinicians were understandably reluctant to approach their clients about the research, many clients approached by clinicians declined to take part, and three individuals seen by myself also decided not to take part.

In order to recruit participants, 11 inpatient units and 16 community mental health teams were contacted across North Wales, Cheshire and the Wirral. Contacts were made by letter, telephone or e-mail and at least two attempts were made to contact each unit or team. Following this, five inpatient units and eight community mental health teams were visited and presentations about the research were made. These were then followed up by regular contact with a number of clinicians from each unit or team who might be able to help recruiting participants. It was calculated that a total of around 70 clinicians were contacted regarding the current project. Through hard work and perseverance a total of 36 participants, out of an anticipated 75, were eventually recruited.

Besides the large volume of work involved, another challenge for me in the recruitment phase was the level of assertiveness required to recruit participants. As I am not a naturally assertive person, I was initially reluctant to assert myself during recruitment, for fear of being a hassle to others. However, faced by a pressing need for participants, I was obliged to adopt a more assertive style of interaction than usual. Through this experience, I learned through practice that skilful assertiveness is not badly received and can be very useful at times it getting you what you need.

The final part of the research process was meeting participants for data collection. I met a wide variety of individuals, many of whom told me a lot about themselves, their difficulties, and their ideas about why they were unwell. Some of these meetings were extremely interesting and would probably have made a good qualitative study. It was a shame that all of this information could not have been included in the current study. Other meetings, however, were very difficult, particularly if the participant was upset. I often left these meetings feeling helpless and guilty because participants were telling me such difficult things about themselves and I felt that I was not giving anything back. In these situations, all I could do was hope that having someone to talk to had been slightly therapeutic for the individual, and that the research that I was carrying out might be able to help the client group as a whole.

Turning to the written tasks, the literature review proved to be the most challenging element of the current thesis. I began the literature review in May 2008 and did not

finish until May 2009. The 7000 words included in the current thesis therefore represent a much larger piece of work in reality.

One of the major difficulties I had with the literature review in the beginning was choosing the topic. The first title that I chose turned out to be far too broad and therefore I changed topics for the first time in September 2008. A few ideas were subsequently considered and rejected over the following months. Finally, guided by my interests in the literature, the current title was decided upon in January 2009.

Once I started writing the literature review however, given the extensive background reading that I had done, I found it particularly difficult to limit the scope of the review. It was extremely difficult to be concise, and was difficult to refrain from writing about tangential ideas, which held up the writing process at times.

In the final stages, the literature review probably suffered as a result of my idealised vision of what a thesis-level paper should look like. Numerous drafts were rejected as a result of not being perfect and it took some time for me to accept that my literature review would not be perfect, but that hopefully it would be 'good enough'. Accepting my own limitations was therefore another really valuable learning point for me.

With respect to the research paper, this proved to be a much more enjoyable process. Although data analysis was unfortunately compromised by the small number of participants, some interesting and significant results emerged. Writing up the research paper was then relatively straightforward. As I had been deeply involved in my research for a long time before I began writing, I felt that I knew the subject area very well by the time of write-up and knew exactly what I wanted to say. No major difficulties were encountered at any point during the research paper write-up and this was therefore felt to be a relatively positive experience.

In conclusion, the process of making this thesis has been very challenging at times. Particular areas of difficulty were the length of the NHS ethics procedure, recruiting sufficient participants with persecutory delusions for the research study, and writing the literature review. Hopefully, in the long-term, the current thesis will contribute not only to my development as a person, but also to current understanding and therefore care of individuals who suffer with persecutory delusions.

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Anxiety, Depression and Self-Esteem in Persecutory Delusions: A Review of Two Models

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The purpose of the current review is to consider the literature relating to anxiety, self-esteem and depression in persecutory beliefs, in order to evaluate two psychological models of persecutory delusions: Daniel Freeman's model (Garety, P. A., Kuipers, E., Fowler, D., Freeman, D., & Bebbington, P. E. (2001). A cognitive model of the positive symptoms of psychosis. *Psychological Medicine* 31, 189-195), which suggests a direct causal role for anxiety in persecutory delusions; and Richard Bentall's model (Bentall, R. P., Kinderman, P., & Kaney, S. (1994). The self, attributional processes and abnormal beliefs: Towards a model of persecutory delusions. *Behaviour Research and Therapy* 32, 331-341), which suggests that persecutory delusions are a defence against low self-esteem and depression.

The review finds evidence for high levels of anxiety, depression and low self-esteem in individuals with persecutory delusions; however none of these emotions are highlighted as being most strongly associated with persecutory delusions. Little evidence is found to support a direct causal role for anxiety in persecutory delusions. Some initial evidence is found for a defensive mechanism as outlined in a revised version of Bentall's model. The review highlights a number of areas in need of further investigation.

Persecutory delusions are a common psychiatric symptom, estimated to occur in between 50 and 90% of individuals with psychosis (Moutoussis, Williams, Dayan, & Bentall, 2007; Sartorius et al., 1986). They are difficult to define (Freeman, 2007); however DSM-IV defines delusions as false beliefs based on incorrect inferences about external reality that are firmly sustained in spite of obvious proof or evidence to the contrary (American Psychiatric Association, 1994). Persecutory delusions involve the belief that others deliberately intend to harm the individual (Freeman & Garety, 2000).

Early psychiatric classification systems typically drew a clear distinction between neurotic conditions, which were considered to be emotion-based, and psychotic conditions, which were considered to be 'ununderstandable' (Jaspers, 1963). Current psychological theories of persecutory delusions, however, suggest that neurotic and psychotic conditions may not be as distinct as previously thought.

The two dominant psychological models of persecutory delusions, namely Daniel Freeman's and Richard Bentall's models, both suggest a central role for emotions in the formation of persecutory delusions. The proposed role for emotion in these two models however, differs in two significant ways. Firstly, the former model highlights a central role for anxiety, whilst the latter suggests associations with low self-esteem and depression. Secondly, the former model suggests a direct causal relationship between emotions and delusions, whilst the latter suggests a defensive relationship.

The aim of the current review is to consider the literature relating to anxiety, self-esteem and depression in persecutory beliefs, in order to evaluate Freeman and Bentall's models. Firstly, the posited roles of emotion in Freeman and Bentall's models will be outlined. Secondly, the literature relating to anxiety and persecutory beliefs will be considered. Thirdly, the literature looking at self-esteem, depression and persecutory beliefs will be considered. Finally, the two models will be compared with respect to the outlined research.

Freeman's Model

Freeman and colleagues' model of delusions (e.g. Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001) proposes a direct role for emotions in delusion formation. According to this model, delusions are typically triggered by a precipitating external event (e.g. a significant life event), a period of internal arousal or an anomalous internal experience (e.g. hallucinations). The delusion that is formed is an attempt to provide an explanation for this experience. The type of explanation chosen is believed to be a direct expression of pre-existing schema (beliefs about the self, world, and others) and the emotions associated with these schema. In addition, certain psychotic processes (e.g. reasoning biases, theory of mind dysfunction) are hypothesised to increase the probability of the explanation chosen being delusional.

As persecutory delusions are typically characterised by threatening themes, Freeman and Garety (2003) suggest that persecutory delusions are a direct expression of

anxiety and anxious schema. With respect to other emotions (e.g. depression), it is suggested these can also impact upon the content of persecutory delusions in some cases, but that anxiety is the key emotion in persecutory delusions.

Bentall's Model

In contrast to Freeman's model, Bentall's model of persecutory delusions (Bentall, Kinderman & Kaney, 1994) suggests a defensive relationship between emotion and persecutory delusions. According to this model, individuals with persecutory delusions have very low self-esteem, similar to those with depression. However, these individuals exhibit an exaggerated self-serving attribution bias, tending to attribute positive events to themselves and negative events to others. The function of this bias is proposed to be defensive; to maintain high explicit self-esteem in order to protect the individual with persecutory beliefs from becoming aware of their low implicit self-esteem and experiencing the negative emotions that result from this.

The current paper will evaluate these two models in the light of research looking at anxiety, low self-esteem and depression in those with persecutory delusions.

Anxiety and Persecutory Delusions

As highlighted above, Freeman and colleagues suggest that anxiety is the key emotion associated with persecutory delusions. More specifically, they propose that anxiety and anxious schema play a direct causal role in the formation of persecutory delusions, by influencing the content of the delusion formed to be persecutory.

In order to evaluate Freeman's theory, two important questions will be considered.

1. Is anxiety the key emotion associated with persecutory delusions?
2. Do anxiety and anxious schema play a direct causal role in the formation of persecutory delusions?

These questions will be addressed in the following section.

Is Anxiety the Key Emotion associated with Persecutory Delusions?

Firstly, a number of studies have highlighted high comorbidity between psychosis and anxiety, with comorbidity estimates ranging between 17 and 71% (Cosoff & Hafner, 1998; Kendler, Gallagher, Abelson, & Kessler, 1996; Maina, Albert, Bada & Bogetto, 2001; Moorey & Soni, 1994; Turnbull & Bebbington, 2001). Moreover, a number of studies have highlighted that anxiety and dysphoria (an emotional state comprising anxiety and depression) may be particularly strongly associated with positive psychotic symptoms (Cella, Cooper, Dymond, & Reed, 2008; Emsely et al.,

1999; Guillem, Pampoulova, Stip, Lalonde, & Todorov, 2005; Lysaker, Bell, Bioty, & Zito, 1995; Mohanty et al., 2008; Nakaya, Ohmori, Komachashi, & Suwa, 1997; Norman & Malla, 1994; Norman, Malla, Cortese, & Diaz, 1998). At first glance such studies seem potentially consistent with Freeman's model. However, it should be noted that as these studies do not look specifically at persecutory delusions, they are not able to comment definitely upon the specific relationship between anxiety and persecutory delusions.

Studies looking more specifically at anxiety and persecutory delusions, meanwhile, at first glance also appear to provide support for Freeman's model. A number of studies using formal self-report measures of anxiety such as the Beck Anxiety Inventory (Beck, Epstein, Brown & Steer, 1988), the State Trait Anxiety Inventory (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) and the Brief Scale for Anxiety (Naeem, Kingdon & Turkington, 2006), have indicated that those with persecutory delusions report high levels of anxiety (Fraser, Morrison & Wells, 2006; Freeman et al., 1998; Freeman and Garety, 1999; Freeman, Garety & Kuipers, 2001; Freeman et al., 2007; Garety et al., 2005; Green et al., 2006; Naeem, Kingdon & Turkington, 2006; Startup, Freeman, & Garety, 2007). Similarly, a number of qualitative interview studies have highlighted that anxious themes such as fear, vulnerability and threat are common in the discourse of individuals with persecutory delusions (Boyd & Gumley, 2007; Campbell & Morrison, 2007a). Clearly, such findings are consistent with the suggestion of a strong link between persecutory delusions and anxiety.

In particular, one type of anxiety that has been associated with persecutory delusions is social anxiety. An early study by Penn, Hope, Spaulding and Kucera (1994) found that positive psychotic symptoms were associated with high levels of both social and agoraphobic anxiety. Similarly, a study by Huppert and Smith (2005) found high rates of both panic and social anxiety in those with persecutory beliefs. These findings have been reliably replicated in further studies highlighting strong associations between social anxiety and persecutory beliefs (Combs & Penn, 2004; Gilbert, Boxal, Cheung, & Irons, 2005; Martin & Penn, 2001). Again, these studies therefore appear consistent with strong links between persecutory delusions and anxiety.

Another type of anxiety that has been associated with persecutory beliefs is post-traumatic stress disorder (PTSD). Trauma histories are common in those with psychosis (Mueser et al., 1998; Neria, Bromet, Sievers, Lavelle, & Fochtman, 2002; Resnick, Bond, & Mueser, 2003) and a number of studies have indicated that PTSD is often associated with persecutory beliefs (Calvert, Larkin, & Jellicoe-Jones, 2008; Campbell & Morrison, 2007b; Gracie et al., 2007; Sautter et al., 1999). These studies may suggest further evidence of a link between anxiety and persecutory delusions, although it should be noted that PTSD has typically been more strongly linked with other positive symptoms, in particular hallucinations, than persecutory delusions (Kilcommons & Morrison, 2005).

A number of studies highlighting that individuals with persecutory delusions may think and act in similar ways to those with anxiety, have also been cited in favour of Freeman's theory (Freeman, 2007). Some studies have indicated that those with persecutory delusions may be hypersensitive to threat (Green & Phillips, 2004; Moritz & Laudan, 2007) and demonstrate a preferential recall for threat related information (Bentall, Kaney & Bowen-Jones, 1995; Kaney, Wolfenden, Dewey, & Bentall, 1992). Moreover, a number of studies have indicated that those with persecutory beliefs may be excessively self-conscious (Combs & Penn, 2004; Fenigstein & Vanable, 1992) and exhibit high levels of worry, a thinking style particularly associated with anxiety (Freeman & Garety, 1999; Startup et al., 2007). Further studies have also begun to indicate that safety behaviours similar to those seen in anxiety conditions, may be present in those with persecutory delusions (Freeman et al., 2001; Freeman et al., 2007).

Finally, a number of studies that highlight negative schema, similar to those seen in anxiety, in individuals with persecutory beliefs, also initially appear to support Freeman's theory. Qualitative interview studies have identified schematic beliefs about the self as weak and vulnerable, and about others as threatening and powerful in those with persecutory delusions (Boyd and Gumley, 2007; Campbell & Morrison, 2007a). Moreover, quantitative studies have identified similar themes. A number of studies using the Brief Core Schema Scale (BCSS; Fowler et al., 2006) and the Post-Traumatic Cognitions Inventory (PTCI; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999) have identified that negative schema relating to the self (weak, worthless, inadequate) and others (bad, threatening) are associated with persecutory

beliefs (Calvert et al., 2008; Campbell & Morrison, 2007b; Campbell & Morrison, 2007c; Fowler et al., 2006; Gracie et al., 2007; Kilcommons & Morrison, 2005).

The above bodies of research clearly highlight strong evidence for high levels of anxiety, anxious behaviour, and the presence of anxiety-like schema in those with persecutory delusions. They therefore seem potentially consistent with Freeman's model. However, there is one major limitation to the above findings. Many of the studies cited above have found evidence that other emotions besides anxiety, in particular depression, may be equally present in those with persecutory delusions. Whilst there are known to be correlations between negative emotions (Diener, Smith & Fujita, 1995; Watson & Clark, 1992), and therefore the presence of other negative emotions might be anticipated to a degree, Freeman's model clearly states that anxiety is the key emotion in persecutory delusions, and therefore appears to predict that anxiety should be most strongly associated with persecutory delusions.

Although a small number of studies have highlighted that anxiety is more strongly associated with positive psychotic symptoms and persecutory delusions than other emotions (Garety et al., 2005; Huppert & Smith, 2005; Norman et al., 1998), the majority of studies have not identified this preferential relationship, and some studies have even found other emotions to be more strongly associated with positive psychotic symptoms than anxiety (Cella et al., 2008; Maina et al., 2001; Sax et al., 1996). Clearly, these findings seem problematic for Freeman's position.

In summary, the above research has highlighted good evidence for the presence of anxiety, anxious behaviours and anxiety-like schema in individuals with persecutory beliefs. The research to date however has not highlighted a preferential relationship between anxiety and persecutory delusions above other emotions and this appears potentially problematic for Freeman's model.

Do Anxiety and Anxious Schema play a Direct Causal Role in the Formation of Persecutory Delusions?

Freeman's model suggests that anxiety plays a direct causal role in persecutory delusions. A number of other authors, however, have suggested that there might be a very different relationship between anxiety and persecutory delusions, in that anxiety may arise as a consequence of the delusions themselves (Chisholm, Freeman & Cooke, 2006; Shaw, McFarlane, Bookless, & Air, 2002). In order to investigate whether anxiety plays a causal role in persecutory delusions, the literature looking at anxiety prior to and during the onset of persecutory delusions will be considered. There are three areas of literature that are relevant to this discussion: the literature looking at early predictors of psychosis; the literature looking at more immediate (prodromal) predictors of the onset of psychosis; and research looking at the experimental induction of persecutory beliefs.

Firstly, the literature looking at early predictors of psychosis has highlighted that those who develop psychosis as adults are often anxious in early life. An early study by Olin, John and Mednick (1995), for example, that followed a sample of 15 year-old students, highlighted that nervousness at 15 was predictive of a diagnosis of psychosis in later life. Similarly, a study by Van Os and Jones (2001) found that neuroticism (a personality factor reflecting anxiety-proneness) at age 16 was predictive of psychosis in later life. Further studies have confirmed that anxiety in mid- to late adolescence may be predictive of psychosis in later life (e.g. Kugelmass et al., 1995) and have suggested that anxiety precedes delusional disorder in 16% of cases (Maina et al., 2001).

Furthermore, a number of studies in the area have highlighted that future development of psychosis may be associated with social anxiety in early life. A study by Jones, Rodgers, Murray and Marmot (1994), for example, found that children who went on to develop schizophrenia in later life had significantly higher self-rated social anxiety at 13, as well as higher teacher-rated anxiety and solitary behaviours at 15. Moreover, this postulated link between early social anxiety and psychosis also seems consistent with studies reporting that social difficulties and social withdrawal at a young age are predictive of psychosis later in life (Done, Crow, Johnstone, & Sachar, 1994; Malmberg, Lewis, David, & Allebeck, 1998). Reviews of the literature in the area conclude that early anxiety, social anxiety and associated concepts such as introversion, shyness and social withdrawal at a young age are often associated with the development of psychosis later in life (Berenbaum & Fujita, 1994; Davies, Russell, Jones, & Murray, 1998; Olin & Mednick, 1996).

Clearly, the above body of research indicates that pre-existing anxiety is often present in those who develop psychosis, and this therefore seems potentially consistent with Freeman's proposal that anxiety plays a causal role in persecutory delusions. However, there are two problems with this assumption. Firstly, it should be noted that none of the studies in this area have looked specifically at persecutory delusions. Whilst one might argue that since persecutory delusions are a symptom of psychosis, it is likely that early anxiety also predates persecutory delusions, the current findings could equally be problematic for Freeman's model. If anxiety is hypothesised to cause persecutory content in delusions, one would surely not expect to find high anxiety in individuals with certain other types of delusions (e.g. grandiose). Secondly, it should be noted that this research indicates that anxiety may predate persecutory delusions but does not provide evidence of a causal relationship between the two. The above findings should therefore be considered with caution.

Secondly, turning to the prodromal literature, this body of research has identified anxiety as an immediate predictor of the onset of psychosis. An early study by Hambrecht, Hafner and Loffler (1994), looking at patient and carer reported prodromal symptoms, found that psychotic patients reported anxiety as one of the main prodromal symptoms directly preceding the onset of psychosis. Moreover, a study by Krabbendam and colleagues (Krabbendam et al., 2002) looking at warning signs preceding the onset of psychosis by one to three years, found that neuroticism three years prior to onset was predictive of a first psychotic episode. Similar findings

were reported by Lewis, David, Malmberg and Allebeck (2000), who found that anxiety five years prior to onset was a common predictor of psychosis.

More specifically, Jorgensen (1998) looked at the prodromal signs associated with delusion formation in individuals with psychotic diagnoses. Anxiety was identified as one of eight factors, alongside sleep problems, irritability, coping, tiredness, depression and confusion, found to predict delusion onset in people with psychosis. In line with the above studies, reviews of the prodromal literature have typically concluded that anxiety is a common prodromal symptom for those with psychosis (Freeman & Garety, 2003; Yung & McGorry, 1996).

At first glance, the prodromal literature again seems potentially supportive of Freeman's suggestion that anxiety plays a causal role in persecutory delusions. However, here there are three points that need to be taken into account. Firstly, as with the previous literature, it should be noted that the above studies have looked at psychosis or delusions in general rather than persecutory delusions, and therefore this literature faces similar difficulties around the predicted specificity of the relationship between anxiety and persecutory delusions. Secondly, again it should be noted that this research does not look directly at a causal relationship. Finally, it should be noted that anxiety is one of many symptoms alongside depression, low self-esteem, and irritability, observed to occur in the prodromal phase. This literature therefore indicates no reason to suggest a specific relationship between anxiety and

persecutory delusions, as suggested by Freeman's theory, but seems potentially more consistent with anxiety as a sign of general distress at the time of symptom onset.

Finally, there has been one study in the prodromal literature that has looked at the relationship between persecutory delusions and anxiety specifically. In this study, Rietdijk, van Os, de Graaf, Delespaul and van der Gaag (2009) looked at the temporal relationship between social anxiety and persecutory delusions over a period of 3 years. Problematically for Freeman's theory, which suggests that anxiety plays a causal role in persecutory delusions, this study found that social anxiety was not a significant predictor of persecutory delusions, but that social anxiety associated with persecutory delusions typically emerged after delusion onset, and was therefore potentially a consequence of persecutory delusions.

The last body of literature relevant to the current discussion has looked at the experimental induction of persecutory delusions. Recently, a number of studies by Freeman and colleagues have used virtual reality environments to induce persecutory beliefs in both non-clinical and at-risk populations (Freeman et al., 2003; Freeman et al., 2008; Valmaggia et al., 2007). These studies have compared the characteristics of individuals who develop persecutory beliefs in a virtual reality environment with those who do not develop persecutory beliefs. Initial evidence from these studies has indicated that those who develop persecutory delusions in the general population tend to be those with high levels of anxiety, worry, and interpersonal sensitivity.

Clearly, the findings from this literature seem consistent with Freeman's suggestion that pre-existing anxious schema and anxiety may play a casual role in the formation of persecutory delusions. However there are also two limitations to this body of research. Firstly, it should be noted that none of the studies in this area so far have used a clinical population, and therefore whether this finding can be extended to beliefs of delusional quality remains to be seen. Secondly, again it should be noted that these studies have identified that anxiety may precede persecutory delusions; however they have not established a direct causal relationship between the two.

In summary, there is good evidence of anxiety in the early history of, and as a prodromal feature for, those with psychosis. However, much of the research outlined in this area is limited by the fact that it looks at psychosis in general rather than specifically at persecutory delusions. Moreover, the prodromal literature is limited by the fact that it highlights a range of emotions that predate delusions, not specifically anxiety, as Freeman's model appears to predict. In the future, further studies looking specifically at persecutory delusions, and even comparing persecutory delusions with other types of delusions, may prove useful. Moreover, studies effectively comparing the presence of anxiety with other emotions in the prodromal phase might also be useful.

Studies using experimental induction in non-clinical populations, meanwhile, indicate that those with anxious predispositions may be more likely to develop

persecutory beliefs. These studies are limited however by the fact that none of them have been carried out in clinical populations.

Finally, it was noted that all of the above studies have looked at whether anxiety precedes persecutory delusions, rather than directly investigating the hypothesised causal relationship between anxiety and persecutory delusions. Future studies might directly investigate this by using experimental techniques to examine the effect of increasing and decreasing anxiety on persecutory delusions or by looking in more detail at changes in anxiety as persecutory delusions develop.

Low Self-Esteem, Depression and Persecutory Delusions

Whilst Freeman proposes a model of persecutory delusions as a direct expression of emotions, and in particular anxiety, Bentall and colleagues (1994) suggest that persecutory delusions are a defence, in particular against low self-esteem and the emotions associated with this low self-esteem. Given links between low self-esteem and anxiety (Brockner, 1983), this theory is not inconsistent with the above literature highlighting associations between anxiety and persecutory delusions. However, low self-esteem has been associated with depression in particular (Beck, 1976), and one might therefore expect strong associations between persecutory delusions and depression. Consistent with this position, Bentall (2003) suggests that there is likely to be a particularly close relationship between persecutory delusions and depression.

In order to evaluate Bentall's theory, two questions will be investigated:

1. Are persecutory delusions associated with low self-esteem and depression?
2. Is there evidence for a defensive mechanism in persecutory delusions?

These two questions will be addressed in the following sections.

Are Persecutory Delusions associated with Low Self-Esteem and Depression?

Bentall suggests that persecutory delusions are associated with low self-esteem and that there may also be a strong relationship between persecutory delusions and depression. However, given the defensive mechanism proposed to underpin this relationship, these emotions cannot be investigated directly whilst delusions are present, as they presumably would not be available to consciousness. In order to investigate the relationship between low self-esteem, depression and persecutory delusions therefore, three literatures will be covered: the literature looking at self-esteem and depression in the early histories of those with persecutory delusions; the literature looking at self-esteem and depression in the prodromal phase; and the literature looking at self-esteem and depression at the implicit level during persecutory delusions.

Firstly, some research has looked at self-esteem and depression in the early histories of those with persecutory delusions. Although less research has looked at depression and low self-esteem than at anxiety at this early stage, findings generally indicate that early depression and low self-esteem are associated with psychosis in later life.

As outlined earlier, Maina and colleagues (2001) reported that 16% of individuals with delusional disorder had experienced premorbid anxiety; however this study equally reported that 19% of those with delusional disorder had experienced premorbid depression. Similarly, in their review mentioned above, Olin and Mednick (1996) highlighted emotional lability, passivity and flat affect as early predictors of psychosis, all of which may be considered possible signs of early depression. Furthermore, in the Van Os and Jones (2001) study discussed above, the authors identified that the early neuroticism seen to predate psychosis is also associated with depression, therefore also making links between depression and psychosis.

With respect to self-esteem, meanwhile, two early studies indicated that this may be present in the histories of those with persecutory delusions. Kendler and Hays (1982) identified that 25% of a sample of individuals with schizophrenia had experienced premorbid feelings of inferiority to others. Moreover, another study by these authors highlighted that these inferiority feelings were often present in the family members of those with delusional disorder (Kendler & Hays, 1981).

From the above studies, it seems there is potential evidence for early depressive signs and low self-esteem in those with psychosis. However, it should be noted that there has been little research in the area so far. Moreover, there are two limitations to the above findings. Firstly, it should be noted that none of these studies have looked specifically at persecutory delusions, and they are therefore limited in their ability to comment on the specific relationship between depression, self-esteem and persecutory delusions. Secondly, the majority of these studies have highlighted other emotions that are equally associated with psychosis alongside low self-esteem and depression. The above research should therefore be considered with caution.

Only one study in the current review has looked specifically at early depression and persecutory delusions (Kirkpatrick and Amador, 1995). This study identified that those with persecutory delusions were particularly likely to have a history of depression compared with individuals with other psychotic diagnoses. However, much more research would clearly be needed to confirm this specific association.

Secondly, a large body of research has highlighted depression and low self-esteem as prodromal features of psychosis. Much of the literature looking at the psychosis prodrome that was reviewed in the anxiety section, has equally highlighted depression as a prodromal feature that immediately precedes the onset of psychosis and delusions (Freeman & Garety, 2003; Hambrecht et al., 1994; Jorgensen, 1998; Lewis et al., 2000; Yung & McGorry, 1996). Moreover, a recent study by Krabbendam and colleagues (Krabbendam, Myin-Germeys, Bak, & Van Os, 2005)

highlighted that depression was a significant predictor of delusion onset after three years in those with hallucinations. In particular, the Lewis and colleagues' (2000) study reported that depression, alongside sleep difficulties, may be the strongest prodromal predictor of psychosis.

With respect to self-esteem, meanwhile, in their study reported above, Krabbendam and colleagues (2002) identified low self-esteem alongside neuroticism as a strong prodromal predictor of psychosis onset after three years. Similarly, Hambrecht and colleagues' (1994) study identified low self-esteem (self-confidence) as a common prodromal predictor of the onset of psychosis. Despite these above findings, the research relating to self-esteem in this area is again somewhat lacking.

Overall, the above studies appear to indicate that low self-esteem and depression form a significant part of the psychosis prodrome. Again, however, two limitations apply. Firstly, it should be noted that all of these studies have looked at predictors of psychosis or delusions in general, rather than persecutory delusions specifically. Secondly, as in the anxiety section, it can be noted that the majority of these studies have highlighted low self-esteem and depression as two of many features seen to directly precede delusion onset, rather than highlighting a preferential relationship with psychosis. It therefore seems that more research would be needed in this area to establish a specific relationship between low self-esteem, depression and persecutory delusions as outlined in Bentall's model.

Finally, a large number of studies have looked at self-esteem and depression at the implicit level in those with persecutory delusions. These studies can be broadly divided into three categories: studies looking at implicit self-esteem in those with persecutory delusions; studies looking at underlying schema in those with persecutory delusions; and studies looking at underlying attribution style in those with persecutory delusions.

Firstly, a number of studies have looked at implicit self-esteem in those with persecutory delusions and have indicated that implicit self-esteem is low in these individuals. Early studies in this area employed memory recall tasks and the Stroop test (Stroop, 1935) to investigate implicit self-esteem. The majority of these studies highlighted that individuals with persecutory delusions have low implicit self-esteem (Bentall & Kaney, 1996; Kinderman, 1994; Taylor & John, 2004), although it should be noted that not all studies have replicated this finding (Bentall & Kaney, 1989; Fear, Sharp & Healy, 1996). More recent studies using a reaction time measure to capture implicit self-esteem, have equally identified low implicit self-esteem in those with persecutory delusions (McKay, Langdon, & Coltheart, 2007; Moritz, Werner, & von Collani, 2006).

Secondly, studies looking at underlying schema in those with persecutory delusions have highlighted potential similarities between depression and persecutory delusions at the implicit level. As cited in the anxiety section, a number of studies employing quantitative measures of underlying schema (BCSS; PTCI) have identified very

negative underlying views of self (e.g. weak, worthless, inadequate) and others (e.g. bad, threatening) in those with persecutory delusions (Calvert et al., 2008; Campbell & Morrison, 2007b; Campbell & Morrison, 2007c; Fowler et al., 2006; Gracie et al., 2007; Kilcommons & Morrison, 2005). Whilst, as highlighted above, these underlying schema are similar to schema seen in those with anxiety, they are also clearly similar to those seen in depression. Moreover, two studies employing another measure of implicit attitudes, the Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978), have also highlighted similar underlying attitudes in individuals with psychosis and persecutory delusions, and those with depression (Bentall & Kaney, 1996; Morrison et al., 2006).

Finally, studies looking at implicit attribution style have also highlighted similarities between individuals with persecutory delusions and those with depression at the implicit level. It is known that individuals with depression tend to attribute negative events to the self (Abramson, Seligman, & Teasdale, 1978). A number of studies have highlighted that individuals with persecutory delusions also tend to attribute negative events to the self at the implicit level (Humphreys & Barrowclough, 2006; Lyon, Kaney & Bentall, 1994), although it should be noted that not all studies have replicated this finding (Diez-Alegria, Vazquez, Nieto-Moreno, Valiente & Fuentenebro, 2006; Krstev, Jackson, & Maude, 1999).

In summary, Bentall's theory suggests that persecutory delusions are associated with low self-esteem and that there may therefore also be a close relationship between

persecutory delusions and depression. Consistent with this position, studies looking at self-esteem and depression prior to onset of psychosis have indicated that low self-esteem and depression often precede the onset of psychosis and in particular form part of the psychosis prodrome. However, given that the majority of these studies have considered psychosis or delusions in general, only limited conclusions about the specific relationship between self-esteem, depression and persecutory delusions can be drawn. Moreover, given the fact that many of these studies have highlighted other emotions that are equally strongly associated with persecutory delusions, little evidence was found for the preferential relationship between depression, and in particular low self-esteem, with persecutory delusions that Bentall's model appears to predict. Studies looking at associations between low self-esteem, depression and persecutory delusions at the implicit level, meanwhile, have been more promising, highlighting low self-esteem, probable depressive schema, and possible evidence of depressive attribution style at the implicit level in those with persecutory delusions.

Is there Evidence for a Defensive Mechanism in Persecutory Delusions?

Bentall and colleagues' (1994) theory suggests that the function of persecutory delusions is defensive, to maintain normal or high explicit self-esteem in order to defend against low implicit self-esteem and the negative emotions associated with this low self-esteem becoming conscious. This position therefore initially appears to make three predictions: firstly, that there will be low self-esteem and depression at

the implicit level in those with persecutory delusions; secondly, that depression will be low in those with persecutory delusions at the explicit level; and finally, that self-esteem will be high or at least normal in those with persecutory delusions at the explicit level. These predictions will be investigated below.

Firstly, Bentall and colleagues' (1994) model predicts that low self-esteem and depression would be present at the implicit level in those with persecutory delusions. This position was investigated in the previous section and, consistent with the predictions of Bentall's model, it could be seen that persecutory delusions were associated with low self-esteem and depression at the implicit level.

Secondly, Bentall and colleagues' (1994) model appears to predict that depression will be low at the explicit level in those with persecutory delusions. A large body of research has looked at explicit depression in those with persecutory delusions. Contrary to the apparent predictions of this model, many studies have highlighted that there may in fact often be high levels of depression at the explicit level in those with persecutory delusions.

Firstly, a number of studies have highlighted high concurrent comorbidity between mood disorders and psychosis with estimates ranging between 50 and 73% (Kendler et al., 1996; Marino, Nobile, Bellodi & Smeraldi, 1993) and high concurrent comorbidity between depression and psychosis with estimates ranging between 7 and 70% (Birchwood, Iqbal, Chadwick & Trower, 2000; Kendler et al., 1996; Siris,

1995). Moreover, a number of studies, many of which were highlighted in the anxiety section, have highlighted that depression and dysphoria are often present in those with positive psychotic symptoms (Cella et al., 2008; Emsley et al., 1999; Guillem et al., 2005; Lysaker et al., 1995; Morrison & Wells, 2007; Nakaya et al., 1997; Norman & Malla, 1994; Sax et al., 1996). Whilst such studies have not been conducted specifically with those with persecutory delusions, and therefore cannot comment definitely upon the specific relationship between persecutory delusions and depression, they seem to suggest that there may in fact be high levels of explicit depression in those with persecutory delusions.

Studies looking more specifically at people with persecutory delusions, have also indicated that these individuals often report high levels of depression. Many studies that have given individuals with persecutory delusions self-report measures of depression (e.g. Beck Depression Inventory, Beck & Steer, 1987) have found high levels of self-reported depression in these individuals (Fraser et al., 2006; Freeman et al., 2001; Freeman et al., 2007; Green et al., 2006; Smith et al., 2006). Moreover, studies in non-clinical populations have highlighted that sub-clinical persecutory beliefs are also often associated with high levels of explicit depression (Combs & Penn, 2004). Finally, a large body of recent research has begun to identify that depression may often develop in those with psychosis and persecutory delusions as a consequence of the experience of being psychotic (Birchwood et al., 2000; Drake et al., 2004; Iqbal et al., 2000; Smith et al., 2006; Maina et al., 2001).

Whilst the above studies reporting depression at the explicit level in those with persecutory delusions initially appear to be problematic for Bentall's theory, Bentall and colleagues (1994) argue that this is not necessarily the case. Low self-esteem and depression do not always necessarily occur together; for example, low mood following a bereavement is not always necessarily accompanied by low self-esteem. Bentall therefore suggests that when depression occurs in those with persecutory delusions, it is simply not accompanied by low explicit self-esteem.

Finally, Bentall and colleagues' (1994) model predicts that there will be normal or high levels of explicit self-esteem in those with persecutory delusions. The literature looking at explicit self-esteem in those with persecutory delusions, however, again seems problematic for Bentall's and colleagues' (1994) theory.

Whilst some studies have indicated that there may be high explicit self-esteem in those with persecutory delusions (Lyon et al., 1994; Candido & Romney, 1990), many studies have reported low explicit self-esteem in these individuals. A number of studies using a variety of measures such as the Self Concept Questionnaire (Robson, 1989), the Rosenberg Self-Esteem Scale (Rosenberg, 1965), the Self Evaluation and Social Support Interview (Humphreys, Barrowclough & Andrews, 2001), the Self-Esteem Rating Scale (Nugent & Thomas, 1993), and the Coopersmith Self-Esteem Inventory (Coopersmith, 1989), have reported that explicit self-esteem is low in those with persecutory delusions (Barrowclough et al., 2003; Bentall et al., 2008; Bowins & Shugar, 1998; Freeman et al., 1998; Freeman et al.,

2001; Green et al., 2006; Humphreys & Barrowclough, 2006; Smith et al., 2006). Similarly, a number of studies in non-clinical populations have highlighted that sub-clinical persecutory beliefs are also often associated with low explicit self-esteem (Combs & Penn, 2004; Ellet, Lopes & Chadwick, 2003; Mills, Gilbert, Bellew, McEwan, & Gale, 2007). Clearly, such findings are very problematic for Bentall and colleagues' (1994) theory, which suggests that the function of persecutory delusions is to protect explicit self-esteem.

A final problem for Bentall and colleagues' (1994) theory of persecutory delusions derives from Trower and Chadwick's (1995) distinction between 'poor me' and 'bad me' delusions. Trower and Chadwick identified that there seem to be two different types of persecutory delusion: poor me delusions, in which the individual feels that persecution is not deserved; and bad me delusions, in which the individual feels that persecution is deserved. They further observed that whilst those with poor me delusions had a self-serving attribution bias and high explicit self-esteem as outlined in Bentall's model, those with bad me delusions tended to have a self-blaming bias and low explicit self-esteem, observations which have been further supported by a number of studies (Chadwick, Trower, Juusti-Butler, & Maguire, 2005; Combs et al., 2007; Fornells-Ambrojo & Garety, 2005). Trower and Chadwick (1995) suggested that whilst Bentall's theory may be able to account for poor me delusions, it did not appear able to account for bad me delusions. Whilst they did not consider this to be a problem, it clearly renders Bentall and colleagues' (1994) model, less comprehensive.

In the light of the above mixed findings, Bentall and colleagues (Bentall, Corcoran, Howard, Blackwood, & Kinderman, 2001) revised their theory of persecutory delusions. The revised model still proposes that persecutory delusions are underpinned by a defensive mechanism that protects against low self-esteem. However, the new model suggests that this defence may be stronger at certain times and break down at other times, for example following negative events. This is proposed to result in very unstable self-esteem in those with persecutory delusions.

Consistent with Bentall and colleagues' revised model, recent studies have highlighted that individuals with persecutory beliefs do appear to have particularly unstable self-esteem. An initial study by Thewissen and colleagues (Thewissen, Bentall, Lecomte, van Os, & Jones, 2007), for example, identified that long-term unstable self-esteem was associated with persecutory beliefs in non-clinical populations. Moreover, a second study by Thewissen and colleagues (Thewissen et al., 2008), which asked individuals with persecutory delusions to keep diaries of daily life, found that self-esteem fluctuated dramatically on a daily basis in these individuals. Such findings clearly appear consistent with Bentall and colleagues' revised model.

Moreover, a recent study by Bentall and Kaney (2005) also appears to provide support for this revised model. This study looked at changes in attribution style following a contrived failure task. It found that individuals with persecutory delusions tended to shift towards a more self-blaming attribution style following

failure, potentially reflecting the fact that defensive mechanisms break down at times in those with persecutory delusions following failure, as suggested in Bentall and colleagues' revised model.

Finally, Bentall and colleagues (2001) suggested that their revised model could account for the existence of both poor me and bad me delusions. They suggested that individuals with persecutory delusions may fluctuate between these two positions, reflecting fluctuations in persecutory defences and associated self-esteem. In support of this proposal, a number of studies have begun to suggest that poor me and bad me delusions may fall along a continuum rather than reflecting discrete categorical entities (Bentall et al., 2008; Melo, Taylor, & Bentall, 2006), and in particular that individuals may fluctuate between these two positions (Melo et al., 2006).

Whilst the above findings seem potentially consistent with Bentall and colleagues' revised model of persecutory delusions, clearly more research is needed in the area to further investigate this relatively new model.

Conclusions

Firstly, it is clear that there are often high levels of anxiety, depression, and low self-esteem and high depression in those with persecutory delusions. The finding that these emotions are strongly associated with persecutory delusions is consistent with

both Freeman and Bentall's models, which suggest that emotions play a central role in persecutory delusions. The findings also appear to suggest that persecutory delusions are less distinct from neurotic conditions and may therefore be more 'understandable' than historically believed.

The literature so far however, does not support either Freeman or Bentall's theory over the other in suggesting a preferential relationship between one particular emotion and persecutory delusions. Freeman's model suggests that anxiety may have a particularly strong relationship with persecutory delusions, whilst Bentall's model suggests that there may be a particularly strong relationship between low self-esteem, depression and persecutory delusions. Clearly some degree of overlap between these emotions might be expected, as anxiety, depression and self-esteem are known to be correlated constructs (Diener, Smith & Fujita, 1995; Watson & Clark, 1992). However, the two models still appear to predict that a preferential relationship with one specific emotion might be expected, and so far this has not been observed.

There are a number of possible explanations for the above findings. Firstly, it is possible that the anxiety, low self-esteem and depression seen in individuals with persecutory delusions reflect a generic distress in these individuals, as outlined in a stress-vulnerability model (Zubin & Spring, 1977), rather than a specific relationship between one particular emotion and persecutory delusions. A second possibility meanwhile is that these findings reflect differences between individuals with

persecutory delusions, such that some individuals may fit better with Freeman's model, whilst others fit better with Bentall's model. Finally, it is possible that the current findings reflect problems with the research so far. As highlighted above, correlations between emotions may have masked differences in the relative contribution of these emotions. In particular, previous authors have highlighted that certain measures of emotions may not have sufficient specificity to override these correlations (McGrath & Ratliff, 1993). Further research using measures with high specificity and large sample sizes may therefore help to clarify this area.

Secondly, the current review looked at the mechanisms proposed to underpin persecutory delusions. Freeman's model suggested that anxiety plays a direct causal role in the formation of persecutory delusions. Potentially consistent with this model, there is a large body of evidence to suggest that anxiety predates psychosis. However, a large number of these studies equally highlight other emotions that predate psychosis. Moreover, very few studies so far have looked specifically at whether anxiety predates persecutory delusions as opposed to psychosis more generally. Studies that have experimentally induced persecutory delusions, have provided some evidence that anxiety may predate persecutory beliefs; however this has been largely carried out in non-clinical populations. Finally, it was noted that no studies in the area so far had looked directly for the hypothesised causal relationship between anxiety and persecutory delusions. Future studies may wish to investigate this by examining the effects of increasing and decreasing anxiety on persecutory delusions, as well as looking in more detail at changes in anxiety as persecutory delusions develop.

Bentall and colleagues' (1994) model suggested that persecutory delusions serve a defensive function, maintaining high explicit self-esteem in order to protect against low implicit self-esteem and negative emotions. Studies highlighting low self-esteem and depressive features at the implicit level in those with persecutory delusions appeared consistent with this model. However, studies indicating high depression and, in particular, studies indicating low self-esteem at the explicit level in individuals with persecutory delusions appeared to contradict the proposed defensive mechanism in Bentall's theory. In the light of these mixed findings, Bentall and colleagues (2001) revised their theory to suggest that the defensive mechanism, and therefore self-esteem fluctuates in those with persecutory delusions. So far there is initial evidence in favour of this position; however further research is clearly needed.

Hopefully, as research continues to elucidate the emotions and mechanisms underlying persecutory delusions, these developments will help to inform the effective care of individuals who suffer from this distressing condition.

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Section 5 – Research Paper

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Self-Esteem and Self-Concept in Individuals with Poor Me and Bad Me Persecutory Beliefs

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Abstract

Objectives. This study aimed to investigate implicit and explicit self-esteem in individuals with poor me and bad me persecutory delusions. Patterns of self-discrepancies in those with poor me and bad me delusions were also assessed.

Design. Sixteen individuals with poor me delusions, eight individuals with bad me delusions and 12 non-clinical controls were compared on measures of explicit self-esteem, implicit self-esteem and self-discrepancies.

Methods. The Persecution and Deservedness Scale was used as a grouping measure. The Self-Esteem Rating Scale was used to measure explicit self-esteem, the Implicit Associations Test was used to measure implicit self-esteem and a modified version of the Selves Questionnaire was used to investigate self-discrepancies.

Results. Individuals with poor me delusions had high explicit but low implicit self-esteem, whilst individuals with bad me delusions had both low implicit and low explicit self-esteem. Results from the Selves Questionnaire indicated high consistency between actual and ideal self, but low consistency between own, parents' and others' views of self in the poor me group. Low consistency between actual and ideal self, and higher consistency between own, parents' and others' views of self were found in the bad me group.

Conclusions. The findings support Bentall, Corcoran, Howard, Blackwood and Kinderman's (2001) model, which suggests that persecutory delusions are a defence against low implicit self-esteem, and that poor me delusions reflect times when these defences are functioning effectively and bad me delusions reflect times when these defences have broken down.

Persecutory delusions are a common symptom of psychosis (Moutoussis, Williams, Dayan & Bentall, 2007) and involve the belief that others deliberately intend to harm the individual (Freeman & Garety, 2000). They are associated with high levels of distress (Green et al., 2006), social isolation (Boyd & Gumley, 2007), and frequent hospital admissions in those with psychosis (Castle, Phelan, Wessely & Murray, 1994).

There are a number of psychological theories of persecutory delusions, which have highlighted a variety of cognitive mechanisms and emotional processes (see Freeman 2007). The current study tests an account of persecutory delusions proposed by Bentall and colleagues (Bentall, Corcoran, Howard, Blackwood & Kinderman, 2001).

Following the observation that individuals with persecutory delusions tend to attribute positive events to themselves and negative events to others (Kaney & Bentall, 1989), Bentall, Kinderman & Kaney (1994) suggested that persecutory delusions were the result of an exaggerated self-serving attribution bias. They proposed that the function of this bias was defensive, to maintain high explicit self-esteem and therefore protect the individual from becoming aware of low implicit self-esteem.

They linked this theory to Higgins' self-discrepancy theory. Higgins (1987) suggested that there are a number of different domains of the self (actual, ideal, and

ought self) that can be seen from different viewpoints (self, others). For Higgins, low self-esteem is underpinned by a negative view of actual self or a discrepancy between actual and ideal self. Bentall et al. (1994) suggested that in persecutory delusions the self-serving bias reduces discrepancies between actual and ideal self in order to increase self-esteem. However, the bias also creates discrepancies between the viewpoints of self and others, which increases the likelihood of future persecutory attributions.

Over the years there has been some empirical support for Bentall and colleagues' theory. Firstly, the majority of studies in the attribution literature have provided evidence of a self-serving bias in those with persecutory delusions (Candido & Romney, 1990; Fear, Sharp & Healy, 1996; Sharp, Fear & Healy, 1997), although it should be noted that not all studies have replicated this finding (Young & Bentall, 1997). Moreover, some studies have highlighted a difference in attribution style at the implicit and explicit level, such that those with persecutory delusions tend to attribute externally at the explicit level but internally at the implicit level (Humphreys & Barrowclough, 2006; Lyon, Kaney, & Bentall, 1994). Again it should be noted that not all studies have replicated this finding (Diez-Alegria, Vaquez, Nieto-Moreno, Valiente & Fuentenebro, 2006; Krstev, Jackson & Maude, 1999).

Secondly, a number of studies in the self-esteem literature have found evidence for Bentall's model. A couple of early studies looking at explicit self-esteem using self-

report measures such as the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) and the Coopersmith Self-Esteem Inventory (CSEI; Coopersmith, 1989) for example, indicated that explicit self-esteem in those with persecutory delusions may be high or normal (Lyon, Kaney & Bentall, 1994; Candido & Romney, 1990).

Moreover, studies using the Stroop test (Stroop, 1935) and memory recall tasks as measures of implicit self-esteem, found the predicted pattern of high explicit and low implicit self-esteem in those with persecutory delusions (Bentall & Kaney, 1996; Kinderman, 1994; Taylor & John, 2004). Similarly, recent studies using a reaction-time measure of implicit self-esteem, the Implicit Associations Test (IAT; Greenwald, McGhee & Schwarz, 1998) found that those with persecutory delusions reported normal to high explicit self-esteem but demonstrated low implicit self-esteem on the IAT (McKay, Langdon & Coltheart, 2007; Moritz, Werner & von Collani, 2006).

Studies looking at patterns of self-discrepancies in those with persecutory delusions have also supported Bentall et al.'s (1994) theory. Kinderman and Bentall (1996) using a modified version of the Selves Questionnaire (SQ; Higgins, Bond, Klein & Strauman, 1986), found that, as predicted, individuals with persecutory delusions had high levels of consistency between actual and ideal self, and high levels of discrepancy between own and others' views of self. Moreover, further studies have reported this predicted pattern of self-discrepancies in those with persecutory delusions following threat, and in non-clinical participants with persecutory-like

attributions (Kinderman & Bentall, 2000; Kinderman, Prince, Waller & Peters, 2003).

Despite the above evidence however, a number of studies have reported findings that are problematic for Bentall and colleagues' theory. Many studies looking at explicit self-esteem, using measures such as the RSES, the CSEI, the Self Concept Questionnaire (Robson, 1989), the Self Evaluation and Social Support Interview (Humphreys, Barrowclough & Andrews, 2001) and the Self-Esteem Rating Scale (SERS; Nugent & Thomas, 1993), have reported low explicit self-esteem in individuals with persecutory beliefs (Bentall et al., 2008; Bowins & Shuger, 1998; Ellet, Lopes & Chadwick, 2003; Freeman et al., 1998; Humphreys & Barrowclough, 2006; Smith et al., 2006). Moreover, a recent study by Vazquez, Diez-Alegria, Hernandez-Lloreda and Moreno (2008) looking at the difference between implicit and explicit self-esteem using a memory recall task, failed to find the predicted difference between implicit and explicit self-esteem in those with persecutory delusions.

In order to account for these mixed findings, Bentall et al. (2001) revised their model of persecutory delusions. Their revised model still suggests that persecutory delusions are underpinned by a defensive attribution bias protecting against low implicit self-esteem. However, the new model highlights that this is a dynamic process. The persecutory defence is hypothesised to fluctuate over time in its ability

to keep low self-esteem implicit, resulting in particularly unstable self-esteem in those with persecutory delusions.

Some authors suggest that Bentall and colleagues' revised theory does not lend itself well to precise predictions about self-esteem (Freeman, 2007). However, this theory does predict that self-esteem will be unstable in those with persecutory delusions, and evidence is beginning to suggest that instability in self-esteem over years (Thewissen et al., 2007) and on a daily basis (Thewissen, Bentall, Lecomte, van Os & Myin-Germeys, 2008) may be associated with persecutory beliefs.

Another way in which this revised theory makes predictions is with respect to 'poor me' and 'bad me' delusions. Based on clinical observation, Trower and Chadwick (1995) identified two subtypes of persecutory delusions: poor me delusions, in which the individual feels that the persecution is not deserved; and bad me delusions, in which the individual feels that the persecution is deserved.

Bentall and colleagues (2001) suggest that poor and bad me delusions reflect the hypothesised fluctuations in defences in those with persecutory delusions. Poor me delusions are experienced when defences are successful in defending against low implicit self-esteem becoming conscious, whilst bad me delusions are experienced when defences break down and low implicit self-esteem becomes explicit.

Consistent with this model, studies have found that individuals with persecutory delusions tend to fluctuate between poor me and bad me positions across time (Melo, Taylor & Bentall, 2006) and that individuals will switch to more bad me type attributions following failure events (Bentall & Kaney, 2005). Such findings seem consistent with the fluctuation between poor me and bad me delusions proposed by Bentall et al. (2001).

Consistent with this account, research has also indicated that those with poor me delusions tend to have higher explicit self-esteem than those with bad me delusions (Chadwick, Trower, Juusti-Bulter & Maguire, 2005; Combs et al., 2007; Fornells-Ambrojo & Garety, 2005). However, as Freeman (2007) points out, so far no studies have looked at both implicit and explicit self-esteem in poor me and bad me delusions. It seems likely that such a study would be an important test of the defensive mechanism proposed to underpin these delusions.

The aim of the current study was to look at both implicit and explicit self-esteem in those with poor me and bad me delusions. In line with Bentall's model, it was predicted that individuals with poor me delusions would show normal or high levels of explicit self-esteem, whilst those with bad me delusions would have low explicit self-esteem. Meanwhile, it was expected that both those with poor me and bad me delusions would have low levels of implicit self-esteem.

A second aim of the current study was to investigate the patterns of self-discrepancies in those with poor me and bad delusions. As highlighted above, Bentall and colleagues (1994) propose that a specific pattern of self-discrepancies underpins persecutory delusions. In line with this theory, it was predicted that poor me individuals would show the previously reported pattern of high consistency between actual and ideal self, and low consistency between own and others' views of self. However, it was predicted that those with bad me delusions would show a different pattern of self-discrepancies, with lower consistency between actual and ideal self, but potentially higher consistency between own and others' view of self, as own views became more negative.

Method

Participants

Thirty-six participants were initially recruited into two groups, a clinical group and a non-clinical group. The clinical group comprised 24 people recruited from inpatient units, community mental health teams, and a university patient panel. All had been diagnosed as suffering from schizophrenia, schizoaffective disorder, or delusional disorder, and were identified as experiencing current persecutory delusions by their referring clinician. The non-clinical group comprised 12 people recruited from a university participant panel.

Measures

Persecution and Deservedness Scale (PADS; Bentall, Melo, Corcoran & Shryane, in press) The PADS was used to divide participants into groups. This is a brief measure that assesses both the severity and the perceived deservedness of persecution. It is a self-report measure containing 20 items, rated on a scale of zero to four. Ten items asking about persecutory beliefs provide a persecution (PADS-P) score. Ten items asking about deservedness of persecution provide a deservedness (PADS-D) score.

An initial assessment of the reliability and validity of the PADS (Bentall et al., in press) indicated high internal reliability and high concurrent validity with the Fenigstein Paranoia Scale (Fenigstein & Vanable, 1992). In the current study, the PADS-P scale demonstrated good internal consistency (Cronbach's $\alpha = 0.92$).

Self-Esteem Rating Scale- Short Form (SERS; Nugent & Thomas, 1993) The SERS was used to measure explicit self-esteem. This is a self-report measure comprising 20 Likert-based items: 10 positive statements about the self that provide a measure of positive self-esteem; and 10 negative statements about the self that provide a measure of negative self-esteem.

The SERS has demonstrated good validity, internal consistency, and test-retest reliability in the general population and in those with schizophrenia (LeComte, Corbiere & Laisne, 2006; Nugent & Thomas, 1993). In the current study, good internal consistency was demonstrated for both positive and negative self-esteem (Cronbach's $\alpha = 0.91$ and 0.87 respectively).

Implicit Associations Test (IAT; Greenwald, McGhee, & Schwarz, 1998) The IAT was used to measure implicit self-esteem. This is a computerised programme that requests individuals to group concepts into categories and uses reaction times as an indicator of implicit attitudes.

A large body of literature has supported the validity of the IAT in social cognition research (Nosek, Greenwald & Banaji, 2007) and it has recently been successfully used in studies investigating implicit self-esteem in individuals with persecutory delusions (McKay et al., 2007; Moritz et al., 2006).

The current study employed a modified version of an IAT created by Greenwald and Farnham (2000). Prior to testing, participants were required to enter personal details into the computer to produce the stimuli for the 'me' category (e.g. name, birthday) and were also required to identify alternative stimuli that did not relate to themselves for the 'other' category.

During the IAT, stimulus words were presented to participants in the middle of the computer screen. Individuals were required to sort these words into categories at the two different sides of the screen by pressing buttons on the corresponding sides of the keyboard. Individuals were asked to work as quickly as possible. If they made an error, a red cross appeared on the screen. Participants were asked to respond to this by correcting the error.

The IAT used in the current study comprised eight blocks. The first two blocks were practice blocks in which participants were required to practice sorting words into 'me' and 'other' categories. The categories swapped sides between blocks one and two, in order to allow practice sorting 'me' and 'other' words to both sides.

The third and fourth blocks were practice blocks in which participants were required to practice sorting words into 'bad' and 'good' categories. Good and bad stimuli from the Greenwald and Farnham (2000) IAT were used. Again, the categories swapped sides between blocks, to allow practice sorting 'bad' and 'good' words to both sides.

The last four blocks required participants to sort the two sets of stimuli at once. Therefore in these blocks, a 'me' or 'other' word or a 'bad' or 'good' word might appear in the centre of the screen. In two of the blocks, individuals were asked to sort 'me' and 'good' words to the same side and 'other' and 'bad' words to the same side (congruent conditions). In the other two blocks, they were asked to sort 'me' and

'bad' words to the same side and 'other' and 'good' words to the same side (incongruent conditions). The categories swapped sides between the two congruent blocks and between the two incongruent blocks to control for any differences in sorting to either side.

Selves Questionnaire (SQ; Higgins, Bond, Klein & Strauman, 1986)

A modified version of the SQ was used to measure self-discrepancies. The original SQ requires individuals to generate 10 attributes they would assign to themselves (actual self), 10 attributes they would like to possess (ideal self) and 10 attributes they feel they ought to possess (ought self). It also requires the individual to generate 10 actual, ideal and ought attributes they believe other people would attribute to them. Matches and mismatches between domains are then used to produce consistency scores.

The SQ has demonstrated high validity (Ozgul, Heubeck, Ward & Wilkinson, 2003) and moderate test-retest reliability (Strauman, 1996) across studies. Modified versions of the SQ have been successfully employed to investigate self-discrepancies in individuals with persecutory delusions (Kinderman & Bentall, 1996; Kinderman et al., 2003).

The modified SQ used in the current study, was similar to that employed by Kinderman and Bentall (1996). It required individuals to produce a list of up to 10

words in four domains: characteristics that they would assign to themselves (self-actual); characteristics they would ideally like to possess (self-ideal); characteristics that their parents would attribute to them (parent-actual); and characteristics that others would attribute to them (other-actual). Participants were also asked to rate on a scale of 1 to 10 the degree to which they felt they possessed, would like to possess, their parents thought they possessed, or others thought they possessed, each characteristic in the respective domains.

Using the method described by Kinderman and Bentall (2000), consistency scores were calculated by comparing words across domains. Direct matches, synonyms and antonyms between two domains were identified using Microsoft Word Thesaurus. Any direct match or synonym with the same numerical rating in two domains scored +2. Any direct match or synonym with a numerical rating that differed by one point scored +1. Any direct match or synonym with a numerical rating that differed by two points scored 0. Any direct match or synonym with a numerical rating that differed by three or more points scored -1. Antonyms scored -2 points.

Total consistency scores were calculated by summing all matches and mismatches between two domains. Consistency scores were then adjusted for differences in number of words reported, by dividing them by the total number of words in the two domains and multiplying by 20. Consistency scores were calculated by two independent raters. Pearson's r correlations indicated good inter-rater reliability in the scoring of this measure (Pearson's r range = 0.86 to 0.94).

National Adult Reading Test- 2nd Edition (NART; Nelson & Willison, 1991)

The NART was used to measure approximate IQ. This measure comprises a list of 50 irregular words that are read aloud. Approximate premorbid IQ is calculated based on the number of errors made.

The NART has had widespread use in individuals with schizophrenia and has been demonstrated to be a reliable measure of premorbid IQ in this population (Morrison, Sharkey, Allardyce, Kelly & McCreadie, 2000).

Procedure

All participants were seen for a first time to be given information about the study. At a second meeting, after signing a consent form, participants were firstly asked to complete the PADS. Participants then completed the SERS, the IAT, and the modified SQ. The order of these three measures was randomised across participants. Finally, participants were asked to complete the NART. This process lasted approximately 1.5 hours in total.

Results

Data Preparation and Analysis Strategy

Prior to analysis, all the data was checked for parametric status. Kolmogorov-Smirnov analyses confirmed that all data were normally distributed (Z value range = 0.594 to 1.112, p value range = 0.168 to 0.872), except for error data from the IAT ($Z = 1.446, p = 0.031$).

For parametric data, one-way ANOVAs were employed to investigate differences between the three groups. Where covariates were thought to influence the data, ANCOVAs were employed. For non-parametric data, Kruskal-Wallis tests were used to compare differences across the three groups.

Due to the low number of participants in the current study, a mean replacement strategy was employed to deal with missing data. Outliers in the data were not removed.

Groups

Participants were initially divided into two groups based on referral status, a clinical group and non-clinical group. From the means, it could be seen that the clinical group scored higher on the PADS-P persecution scale (Mean = 23.93, SD = 10.08)

than the non-clinical group (Mean = 9.58, SD = 7.66). An independent-samples t-test confirmed that this difference was significant ($t = -4.34$, $df = 34$, $p < 0.001$).

In order to identify participants falling into the poor me and bad me groups, a histogram of PADS-D deservedness scores was generated for the clinical group (figure 1). The histogram highlighted two apparent peaks in the data. A mid-point of 1.5 falling between these two peaks was used to divide the clinical participants into poor me (PADS-D < 1.5) and bad me (PADS-D > 1.5) groups. Three different groups were therefore established, a non-clinical group (n=12), the poor me group (n=16) and the bad me group (n=8).

[Figure 1]

Group Demographics

Demographic variables including gender, age, IQ and level of education were compared across the three groups (table 1). One-way ANOVAs revealed no significant differences in age or IQ across groups and a chi-squared analysis revealed no significant gender differences between groups. However, significant differences were found in educational level. Non-clinical participants had a higher educational level than poor me participants, who in turn had a higher educational level than bad me participants. As this variable differed significantly between groups, it was

examined as a potential covariate in all subsequent analyses where covariation was possible.

[Table 1]

Explicit Self-Esteem

Mean positive self-esteem scores and negative self-esteem scores from the SERS are outlined in table 2.

[Table 2]

A one-way ANOVA indicated a significant difference in positive self-esteem scores between groups and a large effect size was found (partial eta = 0.204). Scheffe post-hoc tests indicated that positive self-esteem was significantly higher in the non-clinical group than in the bad me group ($p = 0.024$). The differences in positive self-esteem between non-clinical and poor me and between poor me and bad me groups did not reach significance.

A one-way ANOVA also indicated a significant difference in negative self-esteem scores between groups and again a large effect size was found (partial eta = 0.248).

Scheffe post-hoc tests indicated that negative self-esteem was significantly higher in the bad me group than in the non-clinical group ($p = 0.012$). Again, the differences in negative self-esteem between non-clinical and poor me and between poor me and bad me groups did not reach significance.

Implicit Self-Esteem

Consistent with previous studies (McKay et al., 2007; Moritz et al., 2006), reaction times of 300ms or less and 2000ms or more were excluded from the data before analysis. Incorrect responses were also excluded from the data.

Firstly, mean reaction times across all conditions were calculated for the three groups (table 3). A one-way ANOVA indicated a significant difference in mean overall reaction time between groups and a large effect size was found (partial eta = 0.421). Scheffe post-hoc tests confirmed that the non-clinical group had significantly faster overall reaction times than both poor me and bad me groups ($p < 0.001$ and $p = 0.010$, respectively).

Next, consistent with McKay and colleagues (2007), IAT effects were calculated by subtracting the mean reaction time in congruent (good and me) conditions from the mean reaction time in incongruent (bad and me) conditions. This calculation created IAT effect scores amongst which higher scores reflected higher implicit self-esteem

and lower scores reflected lower implicit self-esteem.

The mean IAT effect scores for the three groups are shown in table 3. An ANCOVA of the IAT effects was conducted, with mean overall reaction as a covariate, as this was known to differ significantly between groups. The ANCOVA found that the differences in IAT effects between the three groups were significant with a large effect size (partial eta = 0.201). From the means, it can be seen that the non-clinical group had the highest mean IAT effect, followed by the bad me group, then the poor me group.

[Table 3]

The IAT error data was also examined. Firstly, the mean number of errors across all conditions were calculated for the three groups (table 3). A Kruskal-Wallis test indicated that differences in overall error rates across the three groups was significant. From the means, it appeared that the non-clinical group made significantly fewer errors than the two clinical groups.

An IAT error index was then calculated by subtracting the number of errors in the congruent condition from the number of errors in the incongruent condition (table 3). A Kruskal-Wallis test of IAT error indices was then conducted. Because of the non-parametric nature of the data, overall error rates could not be included as a covariate.

The Kruskal-Wallis test indicated that differences in IAT error indices across the three groups were not significant.

Self-Discrepancies

Consistency scores were calculated for comparisons of self-actual with self-ideal, self-actual with parent-actual, and self-actual with other-actual domains on the SQ. The mean consistency scores for these comparisons are demonstrated in table 4.

[Table 4]

A one-way ANOVA found that the self-actual:self-ideal consistency scores were significantly different across the groups and a large effect size was found (partial eta = 0.238). Scheffe post-hoc tests revealed that the poor me group had a significantly higher consistency score than the bad me group ($p = 0.012$). The differences between the poor me and non-clinical group and between the bad me and non-clinical group were not significant.

With respect to the self-actual:parent-actual consistency scores, it can be seen that the non-clinical group had the highest consistency score, followed by the bad me

group and that the poor me group had the lowest consistency score. However, a one-way ANOVA indicated that these differences were not statistically significant, although a medium effect size was found (partial eta = 0.085).

Finally, with respect to the self-actual:other-actual consistency scores, it can be seen that the non-clinical group had the highest consistency score, followed by the bad me group and that the poor me group had the lowest consistency score. However, a one-way ANOVA indicated that these differences were not statistically significant.

As in Kinderman and Bentall (1996), a second analysis of data from the SQ was carried out, which compared the valence of words used in the different domains across groups. Valence scores were calculated by subtracting the number of negative words from the number of positive words in each domain. This produced valence scores with higher values reflecting more positive ratings and lower values reflecting more negative ratings. The mean valence scores across all domains are demonstrated in table 5.

[Table 5]

A one-way ANOVA indicated that valence of self-actual ratings was significantly different across groups and a large effect size was found (partial eta = 0.298). Scheffe post-hoc tests indicated that the non-clinical group had significantly more

positive self-actual ratings than the bad me group ($p = 0.004$) and that the poor me group had significantly more positive self-actual ratings than the bad me group ($p = 0.019$). The difference between the poor me group and the non-clinical group was not significant.

A one-way ANOVA also indicated that valence of parent-actual ratings was significantly different across groups and a large effect size was found (partial eta = 0.227). Scheffe post-hoc tests revealed that the non-clinical group had significantly more positive parent-actual ratings than both poor me ($p = 0.035$) and bad me ($p = 0.044$) groups. The difference between poor me and bad me groups was not significant.

Finally, a one-way ANOVA revealed that valence of other-actual ratings was significantly different across groups and a large effect size was found (partial eta = 0.342). Scheffe post-hoc tests revealed that both non-clinical ($p = 0.002$) and poor me ($p = 0.07$) groups had significantly more positive other-actual ratings than the bad me group. The difference between non-clinical and poor me groups was not significant.

Discussion

Bentall et al. (1994) suggest that persecutory delusions serve a defensive function, maintaining high explicit self-esteem in order to defend against low implicit self-esteem. Bentall et al. (2001) further argued that poor me delusions reflect times when an individual is successfully defending against low implicit self-esteem, whilst bad me delusions reflect times when defences have broken down and low self-esteem has become explicit.

The current study looked at implicit and explicit self-esteem in individuals with poor me and bad me delusions, compared with non-clinical controls. Firstly, looking at explicit self-esteem, it was found that the bad me group had significantly lower positive self-esteem and significantly higher negative self-esteem on the SERS than the non-clinical group. The poor me group did not differ significantly from the non-clinical group in positive or negative explicit self-esteem.

The above findings clearly seem consistent with Bentall et al.'s (2001) suggestion that poor me delusions occur when defences are protecting explicit self-esteem and bad me delusions occur when defences have broken down. Moreover, they seem potentially consistent with previous research indicating normal explicit self-esteem in poor me delusions and low explicit self-esteem in bad me delusions (Chadwick et al., 2005; Combs et al., 2007; Fornells-Ambrojo & Garety, 2005).

It should be noted however that, from the means, explicit self-esteem in the poor me group appeared to be higher than in the bad me group, but lower than in the non-

clinical group. These findings seem therefore to support a weaker version of Bentall's theory, in which individuals with poor me delusions are defending against already low self-esteem dropping even lower, to the level seen in those with bad me delusions.

With respect to implicit self-esteem, reaction time data from the IAT indicated that the non-clinical group had the highest implicit self-esteem, followed by the bad me group, then the poor me group. Again these findings are consistent with Bentall et al.'s (2001) model, which suggests that low implicit self-esteem underlies both poor me and bad me delusions. Moreover, these findings are again consistent with previous research that has reported low implicit self-esteem in those with persecutory delusions (Bentall & Kaney, 1996; Kinderman, 1994; McKay et al., 2007; Moritz et al., 2006; Taylor & John, 2004).

Besides these anticipated findings, it was also noted that the poor me group had the lowest implicit self-esteem. Whilst further investigation would be needed to confirm this finding, it seems potentially consistent with the presence of a defensive mechanism, in that individuals with the lowest implicit self-esteem may be those that are least able to tolerate low self-esteem explicitly.

The above findings appear highly consistent with Bentall et al.'s (2001) model; however two potentially problematic observations were also made from the IAT data. Firstly, it was observed that all three groups had positive IAT effect scores. At

first glance, it might therefore appear that implicit self-esteem was high in all groups, which would clearly be problematic for Bentall's model. However, this finding has often been reported in the literature and has been attributed to a limitation of the IAT (McKay et al., 2007; Moritz et al., 2006). The IAT is not able to measure view of self in isolation of views of others, therefore whilst measuring the association between 'self' and 'bad' it also measures the association between 'other' and 'good'. As McKay and colleagues (2007) point out, since those with persecutory delusions tend to have negative views of others, this renders findings of lowered self-esteem on the IAT compared with non-clinical controls even more significant.

Secondly, the error index from the IAT did not find any significant difference between groups. Whilst this is consistent with previous studies (McKay et al., 2007; Moritz et al., 2006), it is not clear why errors would not be a successful measure of implicit attitudes. One possibility in the current study, is that the analysis of the error index was compromised by the fact that overall error rate, a potential covariate, could not be included in the analysis. However, future research may wish to further investigate error rates and the reason for this finding in more detail.

A second aim of the current study was to investigate patterns of self-discrepancies in those with poor me and me bad delusions. Bentall and colleagues (1994) suggest that certain patterns of self-discrepancies result from persecutory defences, specifically increased consistency between actual and ideal self and increased discrepancy between own and others' views of self.

In the current study, the results from the SQ indicated that the poor me group had the highest consistency between self-actual and self-ideal domains, followed by the non-clinical group, then the bad me group. The difference between poor me and bad me groups was significant. These findings seem consistent with Bentall and colleagues' (2001) model of persecutory delusions. It seems that persecutory defences are operating in those with poor me delusions to increase consistency between actual and ideal self, but have broken down in those with bad me delusions.

In both the self-actual:parent-actual and self-actual:other-actual comparisons meanwhile, the non-clinical group demonstrated the highest level of consistency, followed by the bad me group, then the poor me group. Whilst none of these differences reached significance, the directions of these findings were consistent with Bentall's model. Persecutory defences that are operating in those with poor me delusions, increase discrepancies between own, parents' and others' views. In bad me delusions, these defences have broken down and these discrepancies are reduced.

It is interesting to note that the difference between groups was larger in the self-actual:parent-actual comparison, where a medium effect size was found, than in the self-actual:other-actual comparison. There are a number of possible reasons for this finding. It may reflect the fact that individuals with delusions tend to attribute to specific others, such as parents, rather than general others. It may equally reflect the

fact that these individuals have particularly bad relationships with parents. Clearly more research would be needed to follow up this finding.

Finally, the valences of the words endorsed in different domains were also largely consistent with Bentall's model. Both the non-clinical and the poor me group had significantly more positive ratings of actual self than the bad me group. Meanwhile the non-clinical group had significantly more positive ratings of their parents' views of themselves than the poor me and bad me groups. The non-clinical group also had significantly more positive ratings of others' views of themselves than the bad me group. One unexpected finding was that the poor me group had significantly more positive other-actual ratings than the bad me group. This seems consistent with the above finding of larger differences between groups in self-actual:parent-actual than in self-actual:other-actual comparisons. It seems that individuals with poor me delusions may tend to attribute to specific others, whilst those with bad me delusions may be making negative attributions more generally. This area clearly merits further investigation.

Limitations

The current study was firstly limited by a small number of participants. Whilst some of the relationships observed in this study were significant, other anticipated relationships failed to reach significance. Further investigation of this area with larger sample sizes would clearly be beneficial.

A second limitation was the lack of a reliable measure of persecution to confirm group membership. Whilst the PADS-P scale has demonstrated concurrent validity in one previous study (Bentall et al., in press), it demonstrated questionable validity in the current study. Some individuals without persecutory delusions scored highly on this measure, whilst some individuals with persecutory delusions scored very low. The groups in the current study appeared to be valid based on clinician judgement and clinical observation; however future studies might benefit from employing an additional measure of persecution to confirm group membership.

The IAT meanwhile presented some further limitations. Firstly, as highlighted above, the IAT is unable to measure attitudes to self in isolation from attitudes to others. Future studies may therefore benefit from using a recent version of the IAT that can measure self-esteem in isolation (go/no-go association task, Nosek & Banaji, 2001). Secondly, the IAT does not measure both implicit and explicit self-esteem. This study therefore relied on comparisons with non-clinical controls to identify differences between implicit and explicit self-esteem in the clinical groups. This strategy can be problematic, as it assumes non-clinical controls to be consistent across measures. In the future, techniques that can make within-subjects comparisons (e.g. memory recall tasks) may prove more reliable.

Finally, whilst patterns of self-esteem in the poor me group were consistent with a defensive mechanism, patterns of self-esteem in the bad me group were consistent

with the non-presence of this mechanism. Consistent with Bentall's model, this was interpreted as reflecting that the mechanism had broken down; however it might equally reflect that a completely different mechanism operates in bad me delusions. Early longitudinal studies showing fluctuation between poor me and bad me persecution, support Bentall's position (Melo et al., 2006). However, further longitudinal studies looking at poor me and bad me delusions are clearly needed.

Overall, the current study found support for Bentall et al.'s (2001) theory and there are therefore a number of implications for clinical practice. It seems likely that CBT therapies focussing on self-esteem may be useful in this client group (e.g. Hall & Tarrrier, 2003). Alternatively, acceptance-based work relating to underlying negative self-schema may also be effective (e.g. Bach & Hayes, 2002; Gaudiano & Herbert, 2006). Hopefully, as theoretical understanding of persecutory delusions continues to develop, it will underpin advances in the effective care of those who suffer with this distressing condition.

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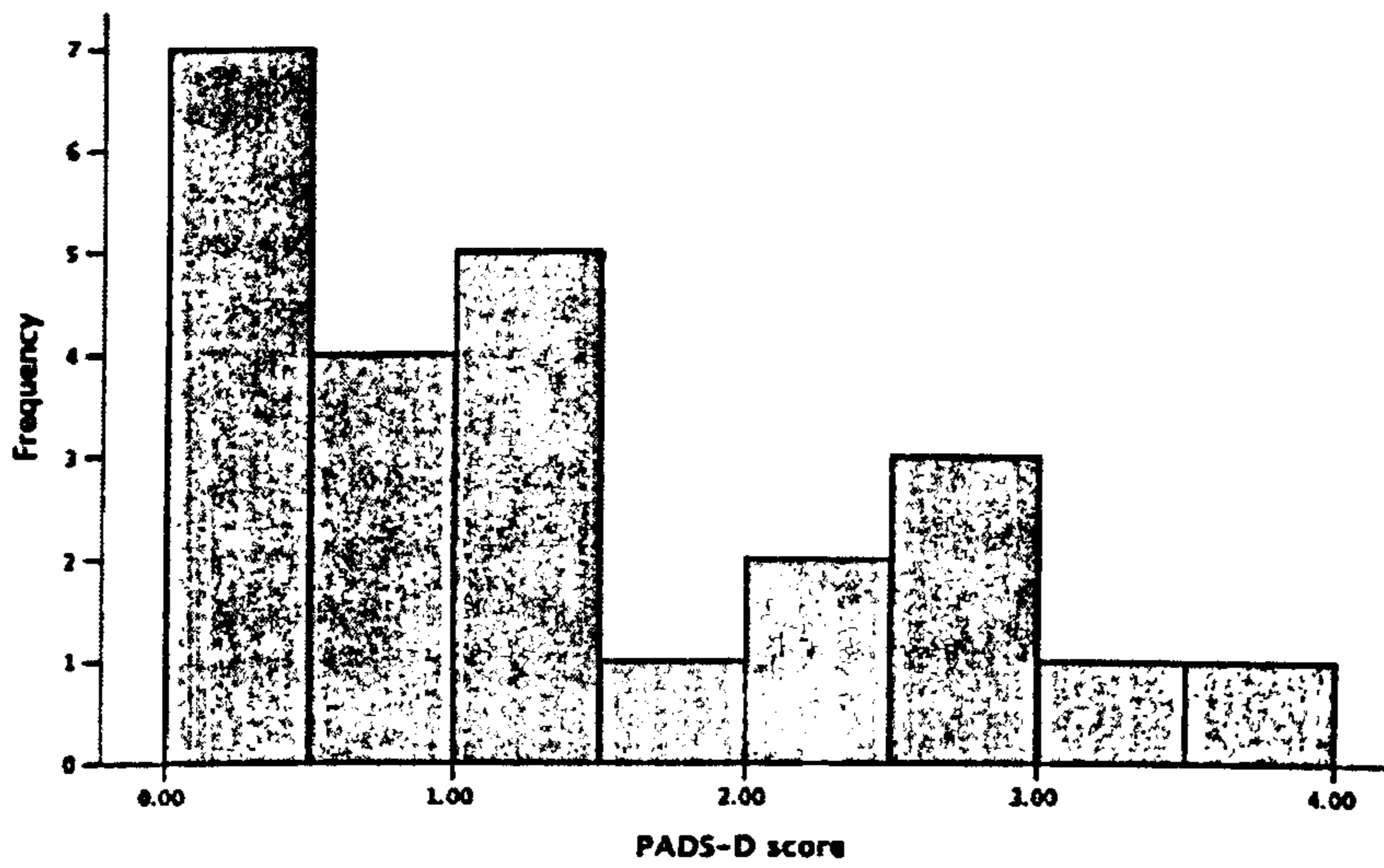


Figure 1. Histogram of PADS-D scores in clinical group

Table 1. Demographics for poor me, bad me and non-clinical groups

	Non-clinical group	Poor me group	Bad me group	F value	P value
Mean age (SD)	39.75 (15.38)	46.69 (14.72)	38.63 (17.55)	1.012	0.374
Mean IQ (SD)	112.75 (5.68)	109.06 (6.80)	105.50 (7.13)	3.032	0.062
Gender ratio (female:male)	1:11	3:13	0:8	2.04 (2)*	0.361
Mean level of education (SD)	2.17 (0.94)	1.60 (1.02)	0.71 (0.70)	10.371 (2)**	0.006

* denotes chi-square X^2 (df)

** denotes Kruskal-Wallis X^2 (df)

Table 2. Positive and negative self-esteem scores in poor me, bad me and non-clinical groups

	Non-clinical group	Poor me group	Bad me group	F value	P value
Mean positive self-esteem score (SD)	49.67 (9.21)	42.43 (11.57)	34.88 (13.16)	4.235	0.023
Mean negative self-esteem score (SD)	26.00 (8.74)	35.60 (9.39)	42.50 (17.08)	5.438	0.009

Table 3. IAT reaction time data and error data for poor me, bad me and non-clinical groups

	Non-clinical group	Poor me group	Bad me group	F value	P value
Mean overall reaction time (SD)	902.41 (121.31)	1235.98 (200.38)	1175.65 (227.74)	11.620	0.000
Mean IAT effect (SD)	336.56 (202.76)	237.00 (168.85)	297.05 (249.27)	3.907	0.031
Mean overall errors (SD)	3.54 (1.53)	9.67 (7.56)	9.50 (8.34)	6.371 (2)*	0.041
Mean IAT error index (SD)	2.58 (1.83)	7.33 (11.16)	7.00 (7.63)	1.595 (2)*	0.451

* denotes Kruskal-Wallis X^2 (df)

Table 4. Consistency scores from the SQ for poor me, bad me and non-clinical groups

	Non-clinical group	Poor me group	Bad me group	F value	P value
Self-actual: self-ideal mean (SD)	1.78 (5.83)	3.63 (7.17)	-5.50 (6.70)	5.162	0.011
Self-actual: parent- actual mean (SD)	4.32 (6.54)	0.99 (3.47)	2.42 (4.94)	1.523	0.233
Self-actual: other-actual mean (SD)	3.49 (3.81)	2.81 (3.19)	3.30 (4.41)	0.083	0.920

Table 5. Valence scores from the SQ for poor me, bad me and non-clinical groups

	Non-clinical group	Poor me group	Bad me group	F value	P value
Mean self-actual valence (SD)	4.75 (2.70)	3.38 (3.32)	-1.63 (5.88)	7.013	0.003
Mean parent-actual valence (SD)	4.67 (3.87)	0.71 (3.11)	0.12 (4.88)	4.834	0.014
Mean other-actual valence (SD)	3.25 (2.89)	2.15 (1.99)	-2.75 (5.47)	8.577	0.001

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Section 6 – Contributions to Theory and Clinical Practice

6.1	Contributions to Theory and Clinical Practice	185
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Contributions to Theory and Clinical Practice

Implications for Future Research and Theory Development

The literature review outlined two major theories of persecutory delusions: Daniel Freeman's theory (Garety, Kuipers, Fowler, Freeman & Bebbington, 2001), which suggests a direct causal role for emotions, and in particular anxiety, in the formation of persecutory delusions; and Richard Bentall's theory (Bentall, Kinderman & Kaney, 1994), which suggests a defensive relationship between persecutory delusions and negative emotions, in particular low self-esteem and depression. The literature review aimed to evaluate these two theories in the light of the literature on anxiety, self-esteem and depression in relation to persecutory delusions.

Consistent with the proposal that emotions play an important role in persecutory delusions, the literature review outlined a large body of research showing high levels of anxiety, depression and low self-esteem in those with persecutory delusions. However, the two theories predicted that different emotions would be dominant in those with persecutory delusions. Freeman's theory predicted that anxiety would be dominant, whilst Bentall's predicted that low self-esteem and depression would be dominant. As none of these emotions were highlighted as being most strongly associated with persecutory delusions, neither of the theories were preferentially supported by the literature.

There are a number of potential reasons for the above finding. It is possible that this research reflects a generic distress associated with persecutory delusions, as seen in stress-vulnerability models (Zubin & Spring, 1977), rather than a role for one particular emotion. It is equally possible that this finding reflects differences within the client group, such that some individuals fit better with Freeman's model, whilst others fit better with Bentall's model. Finally, it is possible that the findings reflected problems with the literature so far. In particular, correlations between the emotions may have masked differences in their relative contributions. Some authors have suggested that certain measures of emotions might not have sufficient specificity to enable a direct comparison of emotions (McGrath & Ratliff, 1993). Further research, employing measures with high specificity and large sample sizes, would therefore be useful in this area.

The literature review also looked at the proposed causal mechanisms outlined in Freeman's and Bentall's models. Firstly, Freeman's model suggested that there was a direct causal role for anxiety in the formation of persecutory delusions. Consistent with this model, the literature review identified that anxiety often precedes psychosis. However, a large number of studies equally outlined other emotions that predate psychosis. Moreover, very little research had specifically looked at whether anxiety precedes persecutory delusions as opposed to psychosis more generally. Whilst studies of experimentally-induced persecutory beliefs have provided some evidence that anxiety may precede persecutory beliefs, it was noted that so far this research has been limited to non-clinical populations. Finally, it was highlighted that

no studies in the literature so far had looked specifically for the hypothesised causal relationship between anxiety and persecutory delusions. Future research might look to investigate this by investigating the impact of increasing and decreasing anxiety on persecutory delusions, as well as looking more closely at changes in anxiety as persecutory delusions develop.

Secondly, Bentall's model proposed that persecutory delusions serve a defensive function, maintaining high explicit self-esteem in order to defend against low implicit self-esteem, and the negative emotions associated with this low self-esteem, becoming conscious. Whilst the literature review highlighted many studies from the self-esteem literature that were inconsistent with Bentall et al.'s (1994) theory, a revised version of this model (Bentall, Corcoran, Howard, Blackwood & Kinderman, 2001), which suggested that persecutory defences can break down at times and that self-esteem therefore fluctuates in those with persecutory delusions, appeared able to account for the mixed findings. The literature review also highlighted further support for this model, although it was clear that much more research was needed to investigate this theory.

The research paper therefore comprised a further investigation of Bentall and colleagues' (2001) theory. It looked at self-esteem and self-discrepancies across two different types of persecutory delusion: poor me delusions, in which the individual believes that they do not deserve to be persecuted; and bad me delusions, in which the individual believes that they do deserve to be persecuted. Bentall and colleagues

(2001) suggested that poor me delusions reflect times when persecutory defences are working and bad me delusions reflect times when defences have broken down. It was therefore hypothesised that in poor me delusions explicit self-esteem would be high and implicit self-esteem low, whilst in bad me delusions both implicit and explicit self-esteem would be low. With respect to self-discrepancies, it was hypothesised that in poor me delusions, actual self would be close to ideal self, but that own views of self would be different from others' views of self. In bad me delusions meanwhile, it was hypothesised that actual self would be more different from ideal self, but own views of self and others' views of self would be more similar.

With respect to explicit self-esteem, the research study found that poor me and bad me participants had lower explicit self-esteem than non-clinical participants, and that those with poor me delusions had higher explicit self-esteem than those with bad me delusions. These findings therefore appeared consistent with a weaker version of Bentall's theory, in which persecutory delusions are a defence that prevents self-esteem in the poor me participants from dropping as low as self-esteem in the bad me participants. Whilst this finding was consistent with previous research highlighting higher explicit self-esteem in those with poor me delusions than bad me delusions (Chadwick, Trower, Juusti-Butler & Maguire, 2005; Combs et al., 2007; Fornells-Ambrojo & Garety, 2005), and with previous research indicating low explicit self-esteem in those with persecutory delusions (e.g. Freeman et al., 1998), future research may be useful to further establish this finding.

With respect to implicit self-esteem meanwhile, the research study found that both poor me and bad me participants had lower implicit self-esteem than non-clinical participants. This finding was clearly consistent with Bentall's model and with previous research highlighting low implicit self-esteem in those with persecutory delusions (Bentall & Kaney, 1996; Kinderman, 1994; McKay, Langdon & Coltheart, 2007; Moritz, Werner & von Collani, 2006; Taylor & John, 2004). Moreover, it was observed that those with poor me delusions appeared to have lower implicit self-esteem than those with bad me delusions. It was hypothesised that this may potentially reflect the defensive mechanism behind persecutory delusions, in that those with the lowest implicit self-esteem were least able to explicitly acknowledge low self-esteem. As the current study was the first to highlight these patterns of both implicit and explicit self-esteem in those with poor me and bad me delusions, future research should look to confirm the current findings, particularly with larger sample sizes. Moreover, it was suggested that further longitudinal studies may wish to look at how these patterns of implicit and explicit self-esteem fluctuate over time alongside changes in poor me and bad me beliefs.

Finally, with respect to self-discrepancies, the research study outlined the predicted pattern of high consistency between actual and ideal self, and high discrepancy between own views, parents' views, and others' views of self, in those with poor me delusions. Meanwhile, in those with bad me delusions, lower consistency between actual and ideal self, but higher consistency between own views, parents' views, and others' views were found. These findings are clearly consistent with the predictions of Bentall's model and were also largely supported by further data relating to the

valences of own views, parents' views, and others' views of self. Future investigation should look to further confirm the current self-discrepancy findings and may also wish to further extend these findings by looking at changes in self-discrepancies over time as individuals fluctuate between poor me and bad me beliefs.

Overall, with respect to psychological theory, the current thesis appears to provide support for Bentall and colleagues' (2001) theory of persecutory delusions. However, this thesis equally highlights a number of areas in need of further research. These areas include: further research effectively comparing anxiety, low self-esteem and depression in relation to persecutory delusions; further research looking specifically at the causal relationship proposed to exist between anxiety and persecutory delusions in Freeman's model; and finally, further research investigating Bentall and colleagues' (2001) model of persecutory delusions, in particular confirming the patterns of implicit and explicit self-esteem found in the current study and using longitudinal studies to look at how these patterns of self-esteem fluctuate over time.

Limitations

The main limitation of the current study was the sample size. Whilst some of the relationships observed in the research paper were significant, other interesting relationships failed to reach significance. A larger study with more power might help to draw out some of these interesting relationships.

A second limitation was the measures employed. As highlighted in the research paper, the Persecution and Deservedness Scale (Bentall, Melo, Corcoran & Shryne, in press), a relatively new measure of persecutory delusions that did not appear to have good construct validity was employed in the current study. Similarly, the Implicit Associations Test (Greenwald, McGhee & Schwarz, 1998) used to measure implicit self-esteem also had limitations, in that it could not measure participants' views of self in isolation from their views of others. Moreover, as the IAT could not measure both implicit and explicit self-esteem, the current study relied on comparisons with non-clinical controls to identify differences between implicit and explicit self-esteem in the clinical groups. This study was therefore based on the assumption that non-clinical participants were consistent across measures. Future research might wish to employ alternative measures of persecution (e.g. the Positive and Negative Symptom Scale, Kay, Fiszbein & Opler, 1987) and implicit self-esteem (go/no-go association task, Nosek & Banaji, 2001; memory recall tasks) in the future.

Finally, the current study was limited by the cross-sectional design. Whilst patterns of self-esteem in the poor me group were consistent with a defensive mechanism, patterns of self-esteem in the bad me group were consistent with the non-presence of this mechanism. Consistent with Bentall's model, this was interpreted as reflecting that the mechanism had broken down; however it might equally reflect that a completely different mechanism operates in bad me delusions. Given more time, a

longitudinal version of the current study might be able to differentiate between these two positions.

Implications for Clinical Practice

Firstly, as highlighted above, the literature review identified that emotions such as anxiety, depression and low self-esteem often appear to be present in those with persecutory delusions. The presence of these emotions suggests an important role for psychological therapy in the care of these individuals. Consistent with this position, psychological therapies, namely cognitive behavioural therapy (CBT) and family therapy, are currently recommended by NICE guidelines (National Collaborating Centre for Mental Health, 2009).

However, despite NICE recommendations, so far evidence for the efficacy of psychological therapies in psychosis is relatively mixed. Whilst some studies have highlighted CBT as an effective intervention in psychosis (Gould, Mueser, Bolton, Mays & Goff, 2001; Startup, Jackson & Bendix, 2004), others have found little difference between CBT and other therapies (Pilling et al., 2002), and there is still limited understanding of which mechanisms underpin therapeutic change in psychosis (Brackoulias et al., 2008). The findings of the current study might therefore also be useful in making specific recommendations regarding the contents of therapy.

Firstly, the fact that emotional distress is often present in those with persecutory delusions has implications for the content of therapy. In order to work effectively with individuals with persecutory delusions and high distress, a particularly strong and trusting therapeutic relationship is likely to be important. Extra time may therefore be required in establishing the relationship in early therapy with these individuals. Moreover, in some cases emotional distress may need to be worked upon directly before an effective intervention for persecutory delusions can be commenced. Relaxation and breathing techniques, Coping Strategy Enhancement (Yusupoff & Tarrier, 1996), and basic CBT strategies for anxiety and depression, may prove useful at this stage. These techniques may help to reduce distress in the first instance and therefore render more long-term therapy possible.

Secondly, as highlighted above, the current thesis compared two theories of persecutory delusions. Limited evidence was found for Freeman's theory (Garety, Kuipers, Fowler, Freeman & Bebbington, 2001), which suggests that persecutory delusions are a direct expression of anxiety. Meanwhile initial evidence was found in favour of Bentall and colleagues' (2001) theory, which suggests that persecutory delusions serve a defensive function, protecting the individual against becoming aware of low underlying self-esteem and the negative emotions associated with this low self-esteem. Moreover, the research paper found support for the suggestion that individuals with persecutory delusions can fluctuate between a 'poor me' position when defences are working and a 'bad me' position when defences have broken down.

Bentall's model indicates that the key element in psychological therapy with individuals with both poor me and bad me delusions is likely to be work on underlying negative self-schema. However, as Chadwick, Birchwood and Trower (1996) highlight, the preparation for working on these schema is likely to be different in those with poor me and bad me persecutory delusions.

In poor me delusions, the individual is unlikely to be aware of, or ready to work on, underlying self-schema straight away. Chadwick and colleagues (1996) therefore suggest that early work with these clients might focus on investigating the explicit content of the delusion. This may even take the form of brief CBT work, with a view to reducing delusional conviction (e.g. Birchwood & Jackson, 2001; Fowler, Garety & Kuipers, 1995; Morrison, Renton, Dunn, Williams & Bentall, 2004). During this work, however it is essential that the therapist uncovers underlying self-schema through investigating the meaning of the persecutory beliefs with the client. Once these negative self-schema are uncovered, the therapist will be able to work upon them directly. In bad me delusions meanwhile, the individuals is likely to have access to negative self-schema from the start, and these can therefore be directly addressed straight away.

Once the client is ready, work on underlying self-schema might take a number of approaches. Firstly, it could take a CBT approach and the therapist might employ cognitive techniques such as reframing, highlighting inconsistencies, historical

testing, and criteria continua, alongside behavioural techniques such as hypothesis testing and activity scheduling, to try to change underlying self-schema (Birchwood & Jackson, 2001; Morrison et al., 2004). Consistent with this approach, some early studies have indicated that CBT work on self-esteem with those with persecutory delusions may be particularly effective (Hall & Tarrier, 2003). An alternative option, meanwhile, might be an acceptance or mindfulness based approach to underlying negative schema, replacing persecutory defences with the acceptance of negative aspects of self. Consistent with this idea, some initial studies of acceptance-based therapies with psychosis have also indicated positive results (Bach & Hayes, 2002; Gaudiano & Herbert, 2006). Whichever therapeutic approach is adopted, a good therapeutic relationship is likely to be important, as the therapeutic relationship is also a powerful source of feedback about the self for the client.

Finally, the use of family therapy is also supported by the current findings. Results from the current research study highlighted that parental views of self were rated as particularly negative by those with persecutory delusions. Previous studies have highlighted that difficult family relationships, particularly expressed emotion in parents (hostility, over-involvement, and a critical attitude), increase the risk of psychosis and psychotic relapse (Butzlaff & Hooley, 1998; Kavanagh, 1992). Moreover, a recent study by Barrowclough et al. (2003) highlighted that the negative self-schema proposed to underpin persecutory delusions in Bentall's model, may often have their origins in family, and particularly parental relationships. It therefore seems likely that a family therapy that improves family relationships and reduces

expressed emotion would improve self-esteem, and therefore help to defend against persecutory delusions.

Implications for Local Services

A recent development in the care of those with psychosis in North West and North East Wales is the introduction of the integrated care pathway (ICP). This approach has been running for approximately a year, and ensures that a multi professional plan of care is developed for every individual diagnosed with psychosis at referral. The current thesis appears to have a number of implications for the application of this approach. Firstly, the current findings highlight the importance of including service users in decision making about care pathways. Increasing control over care pathways is likely to promote self-esteem and mastery, and therefore better mental health. Secondly, the current findings highlight the importance of developing and promoting care pathways that direct individuals with persecutory delusions towards psychological therapy. Finally, they also highlight the importance of developing care pathways that promote independence and attempt to keep individuals out of inpatient services as much as possible, as such services are likely to be stigmatising and therefore damaging to self-esteem.

A second implication for North Wales regards early intervention services. Early intervention services are yet to be developed in North Wales, although such services have already been developed in many areas in England (Pinfold, Smith & Shiers,

2007). Early intervention services provide care for individuals experiencing first episode psychosis aged between 14 and 35. They intervene in a number of ways including: early assessment and detection of psychosis; pharmacological treatment; care coordination; comorbidity; basics (housing, income and support); psychosocial intervention; education and occupation; and acute care (The Salisbury Centre for Mental Health, 2003). Early intervention has proved successful in reducing the long-term harm people with psychosis may experience (Marshall et al., 2005).

The current study has implications for a number of elements of the early intervention services to be developed in North Wales. Firstly, it is important that early assessment and detection services are mindful of anxiety, low self-esteem and depression as potential early warning signs of psychosis, and also the possibility that these symptoms may mask the early signs of psychosis. Secondly, the current study reinforces the message that comorbidity assessment and monitoring are an essential part of the early intervention approach. Thirdly, the current study highlights the importance of early psychological intervention, which is likely to be essential in addressing the underlying psychological causes of psychosis at an early stage, and hopefully pre-empting future poor mental health. Fourthly, education and occupational access need to be a key priority in early intervention, as these should help to improve self-esteem and mastery and therefore protect against persecutory delusions. Finally, as with care pathways, such early intervention initiatives should work to keep individuals out of long-term and acute services as much as possible, as these services are likely to be stigmatising and therefore damaging to self-esteem.

Clearly it is important that effective early intervention services comprising all of the above elements are developed in North Wales as soon as possible.

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Section 7 – Appendices

7.1	Word Counts (Appendix F)	207
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Word Counts

Thesis

Abstract	-	297
Ethics Proposal	-	4670
Personal and Process Issues	-	1161
Literature Review	-	7279
Research Paper	-	5989
Contributions to Theory and Clinical Practice	-	3107
Thesis Total	-	22,503

Appendices

Ethics Amendment	-	71
Information Sheets	-	1740
Consent Form	-	141
Measures	-	2125
Literature Review References	-	3421
Research Paper References	-	1523
Research Paper Tables and Figures	-	352
Contributions to Theory and Clinical Practice References	-	885
Appendices Total	-	10,258
Thesis Total	-	32,761