Cognitive Models of Persecutory Delusions:

The role of Self-Concept

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Abstract

This thesis examines the role of self-concept in cognitive models of persecutory delusions. It consists of two sections: A literature review and an empirical research paper.

The literature review examines the role of self-concept in the formation and maintenance of persecutory delusions as proposed by the three main cognitive models; the *attribution self-representation model*, *persecutory and punishment types of paranoia*, and the *threat anticipation cognitive model.* Each model makes different predictions about the role of self-concept, in particular self-esteem and self-schemas. The review concludes that, in terms of the current research evidence, there is broad support for the threat anticipation cognitive model of persecutory delusions. However, further research evidence is needed to fully clarify the role of self-concept in persecutory delusions.

The empirical study investigates the predictions of the attribution self-representation model in a clinical group of people with persecutory delusions in comparison with a healthy control group. Persecutory delusions are predicted to defend against low implicit self-esteem reaching conscious awareness. For people with persecutory delusions, the model predicts lower levels of implicit self-esteem and equivalent levels of explicit self-esteem when compared with a healthy control group. The results of this study do not support the attribution self-representation model. The findings of this study are discussed in relation to other cognitive models of persecutory delusions and areas for further research are highlighted.

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Literature Review

How do the predominant cognitive models construe the role of self in the formation and maintenance of persecutory delusions?

The literature review follows the submission requirements of the Clinical Psychology Review journal (Appendix 10).

Abstract

Cognitive models propose that aspects of self-concept are important in understanding the development and maintenance of persecutory delusions. In this review the three main cognitive models of persecutory delusions are described: the *attribution self-representation model*, *persecutory and punishment types of paranoia*, and the *threat anticipation cognitive model.* The role of self-concept, in particular self-esteem and self-schemas, is described and differentiated for each of the models. The empirical evidence for the predictions made by each of the models is reviewed and critically evaluated. Broad support for the threat anticipation model is reported. However, there are several areas that future research could usefully investigate in order to fully understand the role of self-concept, and clarify which of the cognitive models best conceptualises persecutory delusions. Areas for further research are discussed.

1. Introduction

Persecutory delusions are beliefs that others intend to cause physical, psychological or social harm to the self. Cognitive models conceptualise persecutory delusions with reference to concepts of self, in particular self-esteem and schematic beliefs about the self and others. This paper will review the dominant cognitive models of persecutory delusions in order to differentiate and distinguish the role of the self in each. The paper will focus on the *attribution self-representation model, persecutory and punishment subtypes of paranoia* and the *threat anticipation cognitive model.* Predictions about self-concept in the formation and maintenance of persecutory delusions are specified for each model. The literature is then reviewed to evaluate these predictions in terms of the research evidence to date.

A literature search was carried out using the Psychinfo and Medline databases (1985-present). Search terms included; paranoia; persecutory delusions; persecutory ideation; self-esteem; schema; self-concept.

2. Persecutory Delusions

The Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV-TR) (American Psychiatric Association, 1994, p.765) categorises a delusion as a false personal belief that is based on an incorrect inference about external reality. Oltmanns (1988) suggests a number of criteria to consider when deciding whether or not a belief is delusional, including: other people find the belief incredible based on the evidence; the belief is not shared by other people; the belief is held with conviction; the person is preoccupied with the belief; the belief causes subjective distress and interferes with functioning; the person does not report subjective efforts

to resist the belief. As more of the criteria are fulfilled there is greater agreement regarding the classification of a delusion.

Persecutory delusions are a particular form of delusion categorised by the belief that others intend physical, social or psychological harm towards the individual. There has been agreement across studies regarding the broad definition of persecutory delusions; however, discrepancies arise regarding the detail of what constitutes persecution in terms of the target, time frame, severity of harm and intent (Freeman & Garety, 2000). In addition, the term paranoia encompasses many meanings (Manschreck, 1992), including suspiciousness, persecutory delusions, persecutory and other delusions combined and also delusions in general, and this has led to a broader range of beliefs being classified as persecutory in the literature (Freeman & Garety, 2004). In order to overcome these variations in diagnosis Freeman and Garety (2000, 2004, p13) offer two criteria for the types of belief that may be classified as persecutory:

A. The individual believes that harm is occurring, or is going to occur, to him or her.

B. The individual believes that the persecutor has the intention to cause harm.

Furthermore, Freeman and Garety specify that harm concerns any action that leads to the individual experiencing distress; and that harm to friends or relatives does not count as a persecutory belief, unless the persecutor intends this to have a negative affect upon the individual.

Persecutory delusions are a common experience within mental health services and are associated with a number of conditions, including psychiatric, neurological and medical disorders (Freeman & Garety, 2004). Persecutory delusions have most often been investigated in people with psychiatric diagnoses. Sartorius et al., (1986) found that persecutory delusions were the second most common symptom of

psychosis. The experience of persecutory delusions can be highly distressing. Applebaum, Robbins and Roth (1999) compared types of delusional beliefs and found that negative affect was markedly high for those with persecutory beliefs and that these types of belief were the most likely to be acted on. Safety seeking behaviours (most frequently avoidance, and less commonly, help-seeking, compliance and aggression) are associated with persecutory delusions (Freeman et al., 2007). Persecutory delusions often remain after clinical intervention and relapse is common (Freeman & Garety, 2004). In summary, persecutory delusions are common in psychosis, often highly distressing, can be associated with risk, and may be resistant to treatment. For these reasons, and because persecutory delusions are beliefs, cognitive models are likely to be of value in understanding the formation and maintenance of these delusions, and possible treatment options.

2.1 Theoretical understanding of persecutory delusions

The three main cognitive theories of persecutory delusions have received mixed support from empirical investigations (Garety & Freeman, 1999; Bentall, Corcoran, Howard, Blackwood, & Kinderman, 2001). The models propose that ideas about the self are implicated in the development and maintenance of persecutory delusions in different ways. This paper will review the ways in which each of the models implicate self-concept in persecutory delusions and the research evidence supporting these proposals.

3. Self-Concept

Before reviewing the models an understanding of self-concept is necessary. Self-concept has been described as a set of inter-related mental representations of one's

self (Kihlstrom & Cantor, 1984) and one's relationship with others (Baldwin, 1992). Self concept is a broad representation of the self (Blascovich & Tomaka, 1991) and includes constructs such as self-esteem, self-schemas, and beliefs about the self and others.

3.1 Self-esteem

Self-esteem can be understood as an individual's overall evaluation of his or her value or importance (Blascovich & Tomaka, 1991). Research investigating self-esteem differentiates explicit (conscious) and implicit (unconscious) evaluations of the self (Greenwald & Banaji, 1995; Greenwald & Farnham, 2000). Discrepancies have been demonstrated between explicit and implicit self-esteem in psychological difficulties. For example, depression has been associated with low explicit and positive implicit self-esteem (Cai, 2003; De Raedt, Schacht, Franck & De Houwer, 2006).

3.2 Schematic Beliefs

Schemas are defined as broad organising principles for making sense of one's life experience (Young, Klosko & Weishaar, 2003). They are comprised of memories, emotions and cognitions regarding oneself and one's relationships with others. Schemas are thought to be developed in early life and elaborated through later life. Examples of maladaptive schemas given by Young et al. (2003) include the abandonment schema (the perceived instability of one's connection with significant others), the shame schema (the feeling that one is flawed, bad or worthless and unlovable by others), and the vulnerability schema (the feeling that one is vulnerable to harm or illness). Schemas about the self and others are often implicit, but also can

be explicit in terms of an individual's beliefs and expectations about the self and others.

3.3 Summary

Self-concept representations incorporate self-esteem and schematic beliefs about the self and others. Persecutory delusions are beliefs held about others in relation to the self. Aspects of self-concept are therefore central to cognitive theories of persecutory delusions; however the models draw on different constructs of self, and make different predictions. These will now be reviewed in detail.

4 Attribution Self-Representation Cycle

Bentall, Kinderman and Kaney (1994) formulated a model of persecutory delusions, which was later modified by Bentall et al. (2001) called the attribution-self representation cycle (ASRC). The model assumes that people with persecutory delusions have latent negative beliefs about the self that can be activated by negative life events. In order to defend against the activation of these latent beliefs people with persecutory delusions attribute blame for negative events to other people rather than themselves. This protects against lowered self-esteem reaching conscious awareness, and the negative affect that would be associated with this awareness, if the self was implicated as responsible. The model incorporates attributional processes and self-representations, and hypothesises that these components are dynamic and cyclically linked. Biases in the ASRC, and in particular cognitive biases, are thought to be important in the development and maintenance of persecutory delusions.

4.1 Overview of the attribution self-representation cycle

Bentall et al., (2001) proposed a general model of how people make attributions, and how these are linked to self-representations. Attribution is the process by which individuals assign cause or responsibility for a particular occurrence; for example, internal attribution (blaming the self) or external attribution (blaming others or a situation). Individuals undertake a cognitive search for a suitable attribution, starting with information that they hold about the self (self-representation). If a self-representation is easily accessible and provides a suitable attribution then the search for an explanation will stop. For example, someone who holds a self-representation that they are clever will be more likely to make an internal attribution for passing an exam. If no internal cause can be found, people will look for external attributions, either personal (blaming others) or situational (blaming the circumstances). External-personal attributions are more likely to be made than external-situational attributions if a person has a high cognitive load. Gilbert, Pelham and Krull (1988) found that people were less able to use situational information in judgements of others' behaviour if they were also given a memory based task.

According to the ASRC, not only will self-representations influence attributions but the type of attribution made will also influence future self-representations. Depending on the type of attribution made, different prior knowledge about the self or others will be primed. For example, internal negative attributions will tend to prime self-representations that match the attribution, for example negative internalised descriptions of the self or emotionally salient negative autobiographical memories. Once this negative knowledge about the self has been primed, future self-representations are likely to also be internal and negative. For example, attributing blame to the self for failing an exam could prime memories

about past experiences of failure, leading to negative self-representations becoming more accessible. External-personal attributions are unlikely to influence self-representations in the same way, as they will not prime knowledge or memories about the self. However, they are likely to prime stored knowledge about others and others' perceived beliefs about the self. An external-situational attribution for a negative event may require more cognitive effort but would be less likely to prime negative knowledge about either the self or others.

4.2 Types of self-representations

The ASRC describes self-representations based on the work of Higgins (1987). Higgins described the actual-self (how an individual perceives him/herself), and two self-standards; the ideal-self (how an individual would like to be), and the ought-self (how an individual perceives that he/she ought to be). Higgins also described these aspects of the self as apparently perceived by others (how an individual believes that others view him/her). Discrepancies between these views of self may be linked with particular psychological problems, for example a discrepancy between actual-self and ideal-self has been related to depression (Scott & O'Hara, 1993) and low explicit self-esteem (Higgins, 1987).

4.3 Attribution-self representation biases in people with persecutory delusions

People with persecutory delusions make excessive external attributions for negative self-referent events (Candido & Romney, 1990; Kaney & Bentall, 1989) and these tend to be external-personal attributions (Kinderman & Bentall, 1997). The ASRC assumes that people with persecutory delusions have underlying negative self beliefs and implicit self-esteem, which can be activated by events that explicitly

require the judgement of self-blame for negative outcomes. Attributing blame to others (external-personal attributions) is seen as a defence against blaming the self (internal attribution), and the activation of latent negative beliefs. Blaming the self could lead to discrepancies between beliefs about the ideal self (how I should be) and the actual self (how I am), leading to negative affect and low explicit self-esteem. Persecutory delusions are therefore proposed to be a defence against implicit negative self-representations and low self-esteem reaching conscious awareness. Blaming others for negative events means that a positive-self representation can be maintained in conscious awareness. However, this strategy of blaming others leads to the belief that others perceive the self negatively, and as a result others are seen as hostile and malevolent, leading to the persecutory delusion. The discrepancy between positive self-representations and perceived negative representations of the self by others is proposed to lead to further external-personal attributions for negative events, thus perpetuating the persecutory delusion.

The model proposes that people vulnerable to persecutory delusions have cognitive biases that mean they are unlikely to make external-situational attributions. External-situational attributions would have the least distressing outcome for the individual, as the self would not be blamed (thus preserving positive self-representations and explicit self-esteem), and others would not be blamed (preventing others being viewed as malevolent). The cognitive biases that prevent external-situational attributions include, excessive sensitivity to negative emotional expressions in others (Davis & Gibson, 2000), and a failure to process situational information due to the high cognitive effort this involves (Gilbert & Krull, 1988).

Bentall et al., (2001) predict that various factors may influence the ASRC. These include knowledge stored about the self, biases towards selecting external-

personal attributions, and the tendency to attend to threat related information (Bentall & Kaney, 1989; Kaney, Wolfenden, Dewey & Bentall, 1991). The particular circumstances in which the attribution occurs will also influence the availability of information about internal or external causes. Therefore types of attributions and available self-representations may fluctuate due to circumstances, and cognitive biases. Although people with persecutory delusions may have a tendency to make external-personal attributions in order to defend against low self-esteem reaching conscious awareness, due to the factors described above, it is predicted that this may not always be the case. There may be times when internal attributions are made for negative events. Discrepancies between actual and ideal-self may then become apparent, at which point negative thoughts and emotions may become more explicit (e.g. low self-esteem). Therefore, the model does not make stable predictions about explicit self-esteem in individuals with persecutory delusions as this may fluctuate dependent on variations in the ASRC. However, when the defence is activated, explicit self-esteem should be protected. Underlying negative schema and implicit self-esteem are assumed to be consistent. This has implications for research; in order to test the model it is important that the persecutory delusions are active for participants at the time of assessment.

4.4 Self-concept in the attribution self-representation model

The model predicts latent negative beliefs about the self and the related concept of low implicit self-esteem for individuals with persecutory delusions. If the defensive aspect of the ASRC is activated then the individual should show a bias for external-personal attributions and normal levels of explicit self-esteem. In terms of self-representations, there should be no discrepancy between the ideal and actual-

self, but discrepancies between beliefs about others' beliefs about the self, and the individual's own self-representations. If the defence is not activated, then the model predicts variation in attributions, explicit self-esteem and self-representations depending on the circumstances and on the cognitive biases in operation at the time. The predicted variations in the ASRC make the model particularly difficult to confirm or falsify through research.

The attribution bias in people with persecutory delusions is well supported by research evidence (Garety & Freeman, 1999). There is limited research investigating discrepancies between implicit and explicit self-esteem, and discrepancies between ideal and actual self-representations, and this will be reviewed in this paper in the section on self-esteem.

5. Persecutory and Punishment types of Paranoia

Trower and Chadwick (1995) formulated a model which distinguished two subtypes of paranoia; persecutory (poor me) and punishment (bad me). In both subtypes individuals believe that others intend them harm, but they differ in whether they believe that they deserve to be harmed. People with the poor me subtype believe that they are undeservedly persecuted, perceive the self as good, and negatively evaluate those whom they perceive as persecuting them. People with the bad me subtype believe that they are justifiably mistreated, perceive the self to be bad, and view the mistreatment as punishment for this. Trower and Chadwick argue that Bentall et al. (2001) describe poor me, and that in this subtype paranoia is a defensive strategy used to protect a positive construction of self in order to prevent low self-esteem reaching conscious awareness. Trower and Chadwick suggest that Bentall et al.'s model does not explain bad me paranoia in which negative evaluations of the self are

in conscious awareness. Rather than focusing on attributions, Trower and Chadwick's model focuses on self-construction, self-schema and interpersonal evaluations.

5.1 Interpersonal evaluations

Trower and Chadwick (1995) emphasise the role of negative person evaluations in paranoia, based on the premise that extreme emotion is linked to different kinds of negative evaluations (Ellis, 1962). Person evaluations are stable and global judgements about the self or others and are akin to Beck's (1976) self and other schemas. Three types of person evaluation are described: self-to-self (evaluation of the self), self-to-other (evaluation of another person), and other-to-self (the perception of how another person evaluates the self). The model suggests that the two subtypes differ in the patterns of interpersonal attributions that are made (Chadwick, Birchwood & Trower, 1996; Chadwick & Trower, 1997).

5.2 The self in poor me and bad me paranoia

Trower and Chadwick (1995) proposed a general theory of self, which explained how the self is constructed normally. They hypothesised that threats to the construction of the self may lead to particular forms of paranoid defence, namely poor me or bad me paranoid delusions. The self is assumed to be continuously constructed on the basis of three key elements; an objective self (the part of the self which is presented publicly), a subjective self (the part of the self that chooses the self presentation behaviour), and the perception of the other (the other person, who observes the presentation behaviour). Trower and Chadwick describe two possible threats to the construction of the self, which they hypothesise can lead to either an

insecure or an alienated self, which in turn can lead to a poor me or bad me paranoid defence respectively. These threats are described below.

5.2.1 The self in poor me paranoia

People with poor me paranoia are hypothesised to hold the trait of an insecure self. An insecure self may be constructed if there is no other, or no attentive other, to recognise and objectify the self-presentation behaviour through childhood. The lack of an objective other may be experienced as abandonment or emptiness. The threat to the self arises from being ignored or rejected by the other, and the consequent failure to achieve a sense of presence in the world. This may lead to extreme negative emotion. In adulthood, people with poor me paranoia interpret this perceived lack of recognition as persecution (negative other-to-self evaluation) rather than evaluate the self negatively. Others are then blamed for their lack of success and lack of presence in the world (negative self-to-other evaluation), which allows the individual to continue to hold a positive self image and retain explicit self-esteem (a positive self-to-self evaluation). Underlying this positive explicit self-esteem, the individual with poor me paranoia has low implicit self-esteem and latent negative self beliefs.

5.2.2 The self in bad me paranoia

People with bad me paranoia are assumed to have constructed an alienated self. An alienated self may be constructed if the other is experienced as being intrusive and controlling through childhood. This leads to a sense of the self being alienated and overwhelmed by the other. In adulthood, for people with bad me paranoia, who experience the self as bad, the threat is that the other will observe and recognise the bad self. The other is seen as superior and good and the self as inferior

and bad, and therefore deserving of punishment. People with bad me paranoia cannot use the same defence as those with poor me paranoia (a negative self-to-other evaluation) because they feel inferior to others. Instead they try to hide the bad self from others through avoidance and hypervigilance. Other people's behaviour is anticipated as critical and punishing. Before perceived recognition by the other, people with bad me paranoia have low explicit self-esteem, feelings of inferiority, powerlessness, guilt and anxiety. Following contact with others they believe their flaws have been recognised and exposed by the other person, resulting in extreme self-consciousness, intense shame, depression and a desire to escape. In terms of interpersonal evaluations, people with the bad me subtype perceive a negative other-to-self evaluation ("others think I am bad"), and a negative self-to-self evaluation ("I am bad"), but as they see others as superior and worthy they make a positive self-to-other evaluation ("others are good").

5.3 Summary of the poor me/bad me model of persecutory delusions

The paranoid delusion for both poor me and bad me subtypes is posited as a defence against the experience of intense negative emotions and activation of negative self-schema. For the poor me group, negative self-schema and low self-esteem are unconscious and the paranoid defence of negatively evaluating others prevents negative emotion and low self-esteem reaching consciousness. For the bad me group the negative self-schema and low self-esteem is already in conscious awareness, but is hidden from others to prevent further distress. The person with bad me paranoia becomes hypervigilant of others and perceives others as critical and punishing. This model predicts different constructions of the self for the two subtypes. For persecutory paranoia, latent self-schemas and implicit self-esteem are

negative but explicit schemas and explicit self-esteem are positive. For the punishment type, both implicit and explicit schema and self-esteem would be negative as the self is consciously experienced as bad or unworthy. In terms of interpersonal evaluations, both types of persecutory delusion involve the belief that someone intends to cause them harm (negative other-to-self evaluation). However, for the persecutory type this harm is deemed to be unjust, therefore a positive evaluation of the self and a negative evaluation of others is made. For the punishment type the harm is deemed to be deserved, therefore they make a more conscious negative self evaluation and positive evaluation of the other. The research evidence for the aspects of self implicated in this model will be reviewed later in this paper.

6. Threat Anticipation Cognitive Model of Persecutory Delusions

The threat anticipation cognitive model (TACM) of persecutory delusions (Freeman & Garety, 2004; Freeman, Garety, Kuipers, Fowler, & Bebbington, 2002) rejects the notion of delusions as a defence. This model highlights multiple factors responsible for the development and maintenance of persecutory delusions, and indicates that psychological processes associated with the anticipation of threat, negative emotion and low self-esteem play a central role. There is no defensive function (Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001). This is in contrast to the models proposed by Bentall et al. (2001) and Trower and Chadwick (1995), which suggest that defensive processes are key to the development of persecutory delusions.

6.1 Formation of persecutory delusions according to the TACM

Based on the stress-vulnerability model, the formation of a persecutory delusion will be precipitated by stress. The arousal caused by the stress inducing

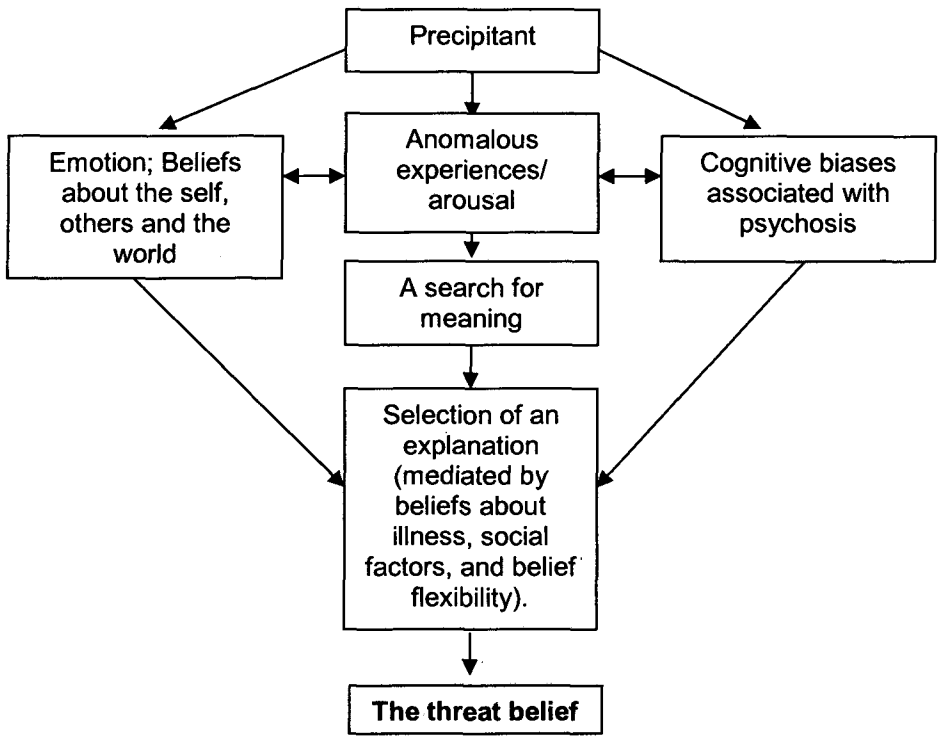
event may lead to anomalous experiences, either directly or by causing emotional disturbance or cognitive biases, which in turn lead to anomalous experiences. The model suggests that the individual seeks to explain any anomalous experience, which could be internal (for example, hallucinations or heightened arousal) or external (for example, ambiguous social information or coincidences). The resultant explanation, that contains beliefs about intended social, psychological or physical threat from others, is shaped by emotions, pre-existing schemas about the self, world and others, and cognitive biases.

The content of the threat belief will be consistent with pre-existing schemas about the self, world and others. Persecutory delusions are likely to occur if the individual believes he or she is vulnerable, deserves harm, or views the world and others as threatening. Garety et al. (2001) suggest that these self-schemas may arise from early adverse experiences. Cognitive models (Beck, Emery & Greenberg, 1985) assume cognition-emotion specificity, linking anxiety with beliefs about threat. Emotion, particularly anxiety, is therefore thought to be important in the formation of persecutory delusions. Freeman and Garety propose that emotion has a direct role in the formation of persecutory delusions and will support the threat content of the belief. Pre-existing anxiety may make a threatening explanation of events more likely. Anxiety about harm will become persecutory if the perpetrators are believed to intend harm. Although anxiety is the key emotion proposed to be linked to persecutory delusions, emotions such as depression and anger may also influence the content of the delusion (Freeman et al. 2002). Concern about danger is a key cognition in both anxiety and persecutory delusions, and the content of the delusion is likely to reflect underlying emotions.

As with the attribution self-representation cycle (ASRC), cognitive biases associated with psychosis are implicated in the formation of delusions; for example, jumping to conclusions (Garety & Freeman, 1999), attribution bias (Bentall et al., 1994) or difficulty interpreting the intentions of others (Frith, 1992). These are predicted to shape the threat explanation.

In summary this model assumes that persecutory delusions arise from the interpretation of anomalous experiences, in the context of cognitive biases and pre-existing beliefs and emotions (Fig. 1).

Figure 1: Summary of the formation of a persecutory delusion (Freeman, 2007)



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6.2 Maintenance of persecutory delusions according to the TACM

As the persecutory delusion is a belief about threat, cognitive processes that maintain anxiety disorders are thought to be implicated. These include attentional

biases, such as preferentially processing threat related material (Bentall & Kaney, 1989), a self-focused cognitive style (Freeman, Garety & Phillips, 2000), which may enhance threat interpretations of ambiguous events, safety behaviours and avoidance that prevent the individual from disconfirming their fears (Freeman, Garety & Kuipers, 2001). If the person continues to have anomalous experiences along with cognitive biases then this is likely to add to the evidence of an intended threat.

Emotions, particularly anxiety and depression, also play a role in the maintenance of delusions. Negative beliefs about the self, world and others contribute to the development of emotional distress, such as anxiety or depression. These negative beliefs are reflected in the content of the persecutory delusion (for example anxiety may be linked to beliefs about danger and vulnerability, and depression linked to beliefs about the deservedness of harm). After the threat belief is formed it is likely to support negative beliefs about the self, world and others, causing further emotional distress. A particular constellation of beliefs and attentional focus, interpersonal sensitivity (IPS), incorporates feelings of personal inadequacy and inferiority in comparison with others and high self-consciousness, and contributes to the maintenance of persecutory delusions.

6.3 Self-concept in the TACM

This model predicts individuals with persecutory delusions would have underlying negative self-schema. As there is no protective function of the delusion, the model predicts that emotions will reflect pre-existing schema. Delusions are proposed to be consistent with existing ideas about the self, others and the world. In particular, schemas regarding the self as vulnerable and others as dangerous or

hostile are likely to be present. The model makes no predictions about discrepancies between implicit and explicit self-concept.

Each of the models that have been presented in this review formulate persecutory delusions around concepts of the self. In the following sections the research evidence will be reviewed for the predictions made by the models, particularly the research relating to self-esteem and self-schema.

7 Self-esteem

7.1 Self-esteem predictions of the three cognitive models

Two of the theoretical models presented predict that protection of explicit self-esteem is a maintaining factor perpetuating persecutory delusions. The attribution self-representation cycle (ASRC) (Bentall et al., 2001) predicts low implicit self-esteem, and proposes that the defensive process of making external attributions for negative events protects the individual from explicit low self-esteem. Although the model is clear that implicit self-esteem remains low, variation is expected in explicit self-esteem according to whether or not the defensive process is activated. Trower and Chadwick (1995) also predict low implicit self-esteem for people with poor me and for people with bad me paranoia. For the poor me group, explicit self-esteem is predicted to be at normal levels, due to the defensive function of the delusion (based on a negative self-other interpersonal evaluation); however, for the bad me group, explicit self-esteem is expected to be low as negative self beliefs are thought to be in conscious awareness. The threat anticipation cognitive model (TACM) proposed by Garety and Freeman (2004) does not make predictions about implicit or explicit self-esteem, as no defensive function is predicted.

7.2. *Explicit self-esteem*

Research evidence on self-esteem in people with persecutory delusions has revealed inconsistent results (Garety & Freeman, 1999). Some investigations have found low explicit self-esteem in people with persecutory delusions (Bowins & Shugar, 1999; Freeman et al., 1998; Green et al., 2006; Smith et al., 2006), which indicates that persecutory delusions may not protect against explicit low self-esteem. However, Candido and Romney (1990) found normal levels of explicit self-esteem in a persecutory delusion group when compared to a depressed group. Lyon, Kaney and Bentall (1994) found similar levels of self-esteem in a group with persecutory delusions and a non-clinical control group, which were both significantly higher that the self-esteem levels of a depressed group. The studies all assessed global self-esteem with self-report measures, most commonly the Rosenberg Self Esteem Scale (RSE) (Rosenberg, 1989), suggesting that the differences across studies were not due to the measures employed.

Bentall et al. (2001) discuss possible reasons for these apparently contradictory findings. It may be that, as Trower and Chadwick (1995) predict, there are two types of persecutory delusions: poor me, where individuals believe they are unfairly persecuted and retain explicit self-esteem; and bad me, where individuals believe that they deserve punishment and have low explicit self-esteem. Research that has found low explicit self-esteem in people with persecutory delusions might have recruited a majority of bad me participants. However, as bad me paranoia appears to be relatively rare (Fornells-Ambrojo & Garety, 2005; Sigmaringa Melo, Taylor & Bentall, 2006), it is unlikely that this would account for the low levels of self-esteem found across the research.

Another possibility proposed by Bentall et al., (2001) for this inconsistency, is that self-representations and self-esteem in people with persecutory delusions are unstable. Self-representations may change over time, as people struggle to maintain positive self-representations but fail. The dynamic nature of the ASRC suggests that attributional processes may change according to cognitive biases which are operating and depending on available self-representations and situational information. There may be times when external attributions are not made, and therefore discrepancies between actual and ideal-self become apparent, and low self-esteem and negative emotions become more explicit. Thewissen et al., (2007) investigated psychotic symptoms (including persecutory ideation) and the stability of self-esteem in a large general population sample. Self-esteem instability is the degree to which feelings of self worth fluctuate. These authors measured levels of self-esteem (RSE) and psychotic symptoms on three occasions (one and two years after initial assessment). The sample was divided into 2 groups; one group consisted of anyone who indicated persecutory ideation, the other group consisted of people who indicated other psychotic symptoms. The findings suggest that self-esteem instability was specifically associated with the presence of persecutory ideation, and not psychotic symptoms in general. Thewissen et al., suggest that this supports the attribution self-representation model, in which attributions, self-representations and explicit self-esteem are assumed to fluctuate. Evidence for the instability of attributional style comes from a study by Bentall and Kaney (2005), in which paranoid participants' attributional style shifted from externalising to internalising after exposure to a mild stressor (an insoluble anagram). The authors argue that this supports the notion of variation in attributional style as would be expected by the ASRC, as negative self-representations may become more explicit after failing a task, leading to more

internal attributions. However, it might be expected that task failure, which might make negative self-representations more accessible thus lowering explicit self-esteem, would activate the defensive process leading participants with persecutory delusions to make more external attributions.

The studies presented above provide support for variability in attributions and self-esteem as proposed in the attribution self-representation model; however, empirical evidence has yet to be obtained for the hypothesised relationship between these two concepts. Research measuring instability of attributional style, and linked variation in explicit self-esteem and self-representations would provide more conclusive evidence for this model. This might help to clarify why people with persecutory delusions made more internal attributions after task failure, as this would not necessarily be predicted by the ASRC model.

Freeman and colleagues offer a different explanation for variability in explicit self-esteem. Green et al., (2006) investigated the relationship between content of persecutory delusions and measures of emotional distress (depression, anxiety and self-esteem). They concluded that explicit self-esteem was related to the content of the delusion; delusional beliefs with self-diminishing content and beliefs that harm was deserved were associated with lower explicit self-esteem and greater depression; feelings of greater power against the persecutor were associated with lower levels of depression and higher explicit self-esteem. These findings are consistent with those of Bowins and Shugar (1998), who investigated how self-esteem was associated with delusional content. They concluded that global self-esteem and self-regard were reflected in the content of delusions, and were associated with the degree to which the delusion was experienced as distressing and self-diminishing. Green et al., and Bowins and Shugar propose that the content of delusions reflect an individual's self-

esteem, rather than defending against it. Interestingly, this study also offers support for Trower and Chadwick's (1995) model, in which beliefs that punishment is deserved (bad me paranoia) are associated with low explicit self-esteem. A limitation of Green et al.,'s study is that causal processes cannot be assumed; emotional states and self-esteem may influence the content of beliefs, and belief content may inform negative self beliefs. Experimental research would be needed to establish causal relationships.

7.3 Implicit self-esteem

Both Bentall et al., (2001) and Trower and Chadwick (1995) (for the poor me subtype) predict a discrepancy between implicit and explicit self-esteem; low implicit self-esteem and protected explicit self-esteem. The research on explicit self-esteem has found inconsistent results, perhaps because the defensive process is not always successful and may only prevent explicit self-esteem from falling lower. Therefore evidence for a discrepancy between implicit and explicit self-esteem may provide support for persecutory delusions as a defence.

A review of studies of implicit self-esteem in persecutory delusions reported inconclusive results overall (Garety & Freeman, 1999). Un-validated measures of implicit self-esteem were often employed. The Implicit Association Test (IAT) (Greenwald & Farnham, 2000; Greenwald, McGhee & Schwartz, 1998), a reliable measure for assessing implicit associations and self-esteem (Bosson, Swan & Pennebaker, 2000), opened new possibilities for measuring implicit self-esteem in people with persecutory delusions. The IAT is computerised reaction time task that measures the strength of implicit associations between concepts. Self-esteem IATs, measure the strength of association between "self" or "other" words and positive or

negative words (Greenwald & Farnham, 2000). Using two response keys participants are asked to categorise words. Non-clinical participants tend to respond faster when "self" and positive words share a response key than when "self" and negative share a response key. Two studies have used the IAT to measure implicit self-esteem in people with persecutory delusions (McKay, Langdon & Coltheart, 2007; Moritz, Werner & von Collani, 2005).

Moritz et al. investigated implicit self-esteem using an IAT task and explicit self-esteem using the Rosenberg Self-Esteem Scale (RSE) in people with schizophrenia with persecutory delusions, schizophrenia with no persecutory delusions, a healthy control group, and a group with depression. The persecutory delusion group and non-paranoid schizophrenia group demonstrated significantly lower implicit self-esteem in comparison to the healthy and depressed controls. The healthy control group had significantly higher explicit self-esteem than any of the other groups. However, the persecutory delusion group had significantly higher explicit self-esteem that the non-paranoid group. The authors argue that this study supports the proposal that persecutory delusions defend against low self-esteem reaching consciousness, as the paranoid group demonstrated higher explicit self-esteem and lower implicit self-esteem than the non-paranoid group with schizophrenia.

McKay, Langdon and Coltheart (2007) also used the IAT and RSE to measure implicit and explicit self-esteem in people with persecutory delusions. Comparisons were made between a group with persecutory delusions, a group with remitted persecutory delusions, and a healthy control group. The group with current persecutory delusions had significantly lower implicit self-esteem than the other two groups, even with depression included as a covariate. The persecutory delusion group

also had significantly lower explicit self-esteem than the other two groups; however when depression was included as a covariate this effect disappeared. This suggests that explicit, but not implicit, self-esteem is accounted for by depression in this sample.

These two studies suggest that people with persecutory delusions have lower implicit self-esteem than healthy controls. People with persecutory delusions also have explicit self-esteem that is lower than that of healthy controls. The results for implicit self-esteem are consistent with Bentall et al.,'s (2001) model and also with Trower and Chadwick's (1995) model. The explicit self-esteem results require more discussion. Bentall and colleagues suggest that explicit self-esteem fluctuates with variations in the attribution self-representation cycle; this may explain why explicit self-esteem was not at the same level as the healthy controls. However, if the function of persecutory delusions is a defence against low self-esteem reaching conscious awareness then the persecutory delusion group would not be expected to have lower explicit self-esteem than people with remitted delusions and a healthy control group as McKay et al. found. It could be argued that the defence is to stop explicit self-esteem falling lower as suggested by Bentall et al. (2001), but it is difficult to see how to test this possibility.

Freeman and Garety (2004) offer a different perspective. Their model predicts underlying negative self-schema for individuals with persecutory delusions, but as there is no protective function of the delusion it predicts that explicit emotions will reflect the underlying schema. The research demonstrating low explicit self-esteem in people with persecutory delusions is more consistent with this model. However, the TACM does not explain the demonstrated discrepancies between implicit and explicit measures of self-concept.

7.4 Summary of research on self-esteem

The current research has shown variation in levels of explicit self-esteem in people with persecutory delusions, and also varying levels of explicit self-esteem for individuals over time. This finding does not provide unequivocal support for any of the three cognitive models above others, as each predict variations in explicit self-esteem. Bentall et al., (2001) state that the variation in explicit self-esteem is due to instability in the attribution self-representation cycle. Chadwick & Trower (1995) predict low explicit self-esteem for the bad me subtype of paranoia, but high explicit self-esteem for the poor me group. Freeman and Garety (2004) would expect the explicit self-esteem of the individual to reflect the underlying schemas, which are likely to vary from person to person. Explanations regarding the links between persecutory delusions and variation in explicit self-esteem require further research, specifically evidence that attributions and self-representations fluctuate together, or evidence of underlying negative schema influencing self-esteem.

In terms of implicit self-esteem only two studies have been conducted with people with persecutory delusions (McKay et al., 2007; Moritz et al., 2005). Both show low implicit self-esteem, and greater levels of explicit self-esteem compared with certain clinical control groups. The discrepancy between implicit and explicit self-esteem in these studies might be considered evidence of the defensive role of persecutory delusions, indicating that the delusion prevents low implicit self-esteem from becoming conscious. However, as explicit self-esteem for people with persecutory delusions was low in comparison with non-clinical groups, and a depressed group (McKay et al., 2007) any defensive function is likely to be against extreme levels of explicit low self-esteem. Further research on implicit self-esteem

and explicit self-esteem will be necessary to confirm the findings of these two studies.

8. Schematic Beliefs

8.1 Predictions about self-schemas based on the three cognitive models

The threat anticipation cognitive model (TACM) proposed by Freeman and colleagues predicts that particular self-schemas will be relevant to the development and maintenance of persecutory delusions. These are schemas about the vulnerability of the self, beliefs about the deservedness of harm, and beliefs about the world and others as threatening or hostile, which are thought to arise from early life experiences (Freeman et al. 2002). Emotions associated with these beliefs, following predicted cognition-emotion specificity (Beck, 1976), such as anxiety and depression, will play a key role in the formation and maintenance of persecutory delusions. Bentall et al.,'s (2001) model implies that there are underlying negative self-schema in persecutory delusions, which are related to implicit self-esteem. Trower and Chadwick (1995) also predict underlying negative self-schema for both the poor and bad me paranoid groups; the poor me group are protected from these negative self beliefs becoming conscious, whereas the bad me group have consciously accessible negative self-schema.

8.2 Research on schemas

Fowler et al., (2006) developed the Brief Core Schema Scales (BCSS) as a measure of four types of schematic beliefs in psychosis: positive-self beliefs, negative-self beliefs, positive-other beliefs and negative-other beliefs. The negative-self scale is based on already established negative self-schema associated with

depression (Teasdale & Cox, 2001) (e.g. "I am bad/worthless"). The items used in the positive self scale measure equivalent positive ideas (e.g. "I am good/ successful"). The negative-other scale is based on appraised threat from others (e.g. "others are hostile/devious"), theoretically relevant in cognitive theories of psychosis and in particular persecutory delusions. The positive-other scale items assess equivalent positive ideas (e.g. "others are accepting/fair").

Using the BCSS Fowler et al., (2006) assessed schemas in a non-clinical group and in a group with psychosis. Measures of explicit self-esteem, depression, anxiety and paranoia were used with both groups. In the control sample, three variables significantly predicted paranoia; in order of importance these were more negative-other beliefs, greater anxiety and more negative-self beliefs. Depression and self-esteem made no extra contribution in explaining the variance in paranoia.

The psychosis group consisted of 55% of people reporting persecutory delusions, 57% of people reporting auditory hallucinations and 17% reporting grandiose delusions. The psychosis group endorsed more negative-self and other schemas than the non-clinical group. However, in terms of positive-self and other schemas there were no differences between the psychosis and non-clinical group, nor were there differences in explicit self-esteem. The psychosis group were not divided into specific positive symptom groups for the analysis, so it is not possible to isolate the results for those with persecutory delusions. However, the results suggest that the psychosis group did not have a lack of positive beliefs about the self or others, and did not have diminished self-esteem when compared with the non-clinical group. The psychosis group did however hold more negative beliefs about the self and others.

The results of this study need to be interpreted with caution in relation to persecutory delusions. Associations between schemas and paranoia were tested in the

non-clinical group and it is not clear how far these results can be extrapolated to a clinical sample. The psychosis group, although consisting of a significant percentage of people with persecutory delusions, was not divided according to positive symptoms. The results for the non-clinical sample suggest that paranoia occurs in the context of anxiety, negative beliefs about others (or interpersonal threat) and negative self beliefs (or personal vulnerability). This is consistent with the proposed role of anxiety and negative-self and other beliefs detailed in the TACM (Freeman & Garety, 2004). In addition, the high level of negative-self and other beliefs in the psychosis group suggest a sense of self-inadequacy or vulnerability, whereas others are seen as hostile and bad. Fowler et al., (2006) suggest that it is this appraisal of danger and vulnerability in a social context that may lead to paranoia, rather than poor self-esteem.

Smith et al., (2006) investigated depression, explicit self-esteem, and negative schematic beliefs (BCSS) in relation to specific positive symptoms of psychosis. The aim of the study was to understand how negative schematic beliefs and emotional dysfunction interact. They predicted direct, and non-defensive associations between positive symptoms and depression, low explicit self-esteem and negative schematic beliefs, based on Garety et al.'s (2001) cognitive model of psychosis. Greater depression, lower explicit self-esteem and more negative self and other schemas were associated with more severe and distressing persecutory delusions. Negative self beliefs were associated with persecutory delusions, even after low mood and low self-esteem were accounted for. This provides further evidence of an association between negative self-schemas and persecutory delusions. However, given the cross sectional design of this study, causal relationships cannot be assumed. Experimental and longitudinal research would be required to address the

issue of cause and effect. Research assessing negative self-schemas and emotional dysfunction during first incidences of persecutory delusions and then at subsequent times would provide more information about causal processes.

Gracie et al., (2007) also investigated associations between negative schematic beliefs, using the BCSS, and paranoia in a non-clinical population. Based on evidence that there is a positive association between positive symptoms of psychosis and history of trauma, particularly interpersonal trauma (Bebbington et al., 2004; Mueser et al.,1998), Gracie et al., investigated the association between trauma, negative schematic beliefs about the self and others, and paranoia. They hypothesised that negative schematic beliefs would mediate the relationship between trauma and paranoid ideation, as negative beliefs about the self and others may be linked to or arise from early (interpersonal) trauma. A prediction of Freeman and Garety's (2004) model is that beliefs about the self as vulnerable and others as hostile, which are formed in early life, will influence the development of a threat belief in persecutory delusions.

Gracie et al. (2007) found that paranoia was strongly associated with the experience of victimizing traumas. Greater numbers of interpersonal traumas reported by participants were linked to higher levels of paranoia. The research found very high correlations between paranoia, trauma and negative-self and other schematic beliefs, and that the negative-self and other schematic beliefs accounted for a large degree of variance in paranoia even when other variables were controlled. Gracie et al., cite this as strong evidence for the mediating role of negative schematic beliefs in the pathway from trauma to paranoia. This provides support for the TACM that predicts underlying negative beliefs about the vulnerability of self and

dangerousness of others formed during early (traumatic) life experiences, and the link with the development of persecutory delusions later in life.

8.2.1 Interpersonal Sensitivity (IPS)

IPS is described as beliefs of personal inadequacy and inferiority when compared with others, and is thought to be important in maintaining persecutory delusions according to the TACM. Freeman et al., (2005a; 2005b) studied the structure of paranoia in a non-clinical population, using an internet survey. These studies found an association between social comparison and paranoia. Lower social comparison scores (for example, feeling left out, less competent and more inferior to others) were associated with higher levels of paranoia. These authors suggest that low social self-confidence may make people feel vulnerable to threat and therefore contribute to the development and maintenance of paranoia. Further evidence for IPS in people with persecutory delusions comes from a virtual reality study using a non-clinical group (Freeman et al., 2003). Higher anxiety and interpersonal sensitivity (IPS) were significantly associated with greater persecutory ideation. The Brief Symptom Inventory (BSI) (Derogatis, 1993), which was used to assess IPS in this study, measures self-consciousness and negative expectations concerning interactions with others. This provides further support for the association between persecutory, beliefs about vulnerability and having a high self-focus. Empirical investigations are needed to explain exactly how interpersonal sensitivity and self-focus link to persecutory ideation in terms of a causal relationship.

8.3 Summary of research on schematic beliefs

The research by Smith et al., (2006), Fowler et al., (2006) and Gracie et al., (2007) consistently found that negative-other and negative-self schematic beliefs were associated with persecutory ideation. Each of the studies relied on the BCSS for assessing schematic beliefs. This BCSS accesses explicit positive or negative schemas about the self and others. These findings are consistent with the TACM (Freeman & Garety, 2004), which predicts self-schemas regarding vulnerability and inferiority and other schemas regarding hostility and threat. The findings are inconsistent with defensive models of persecutory delusions (Bentall et al., 2001; Trower & Chadwick, 1995) in which persecutory delusions are supposed to prevent explicit low self-esteem and negative-self schemas from reaching conscious awareness. If persecutory delusions serve a defensive function, then an association between persecutory delusions and explicit measures of negative self beliefs would not be expected.

A limitation of the research on negative schematic beliefs in persecutory delusions is that it often relies on non-clinical populations. Gracie et al., (2007) presume that there is a continuum of positive symptoms of psychosis from acute psychotic illness through to milder levels in the general population. Persecutory ideation and suspiciousness are common in non-clinical samples (Freeman et al., 2005; Peters, Joseph & Garety, 1999), and there is an emerging view in the cognitive literature that positive symptoms of psychosis occur on a continuum with normal experiences (Johns & van Os, 2001). Freeman et al., (2005) found a hierarchy of paranoia in a non-clinical population, ranging from the most common type of suspiciousness of social anxiety and interpersonal worry, through to the least common type of suspiciousness about severe threat, the suggestion being that severe

paranoia may build on common emotional concerns, consistent with the idea that persecutory delusions are formed in a non-defensive, normal style. The assumption is that results from non-clinical populations can be extrapolated to clinical groups, however further research with people with clinical persecutory delusions is needed to confirm this.

The current research evidence supports Freeman and Garety's (2004) TACM. However, it does not fully explain the clinical descriptions of the poor me and bad me paranoia subtypes (Trower & Chadwick, 1995). The following section will review the research evidence for the predictions about self-concept made by this model, and will compare predictions made by the ASRC and the TACM.

9. The self in poor me and bad me paranoia

Particular aspects of the self are worthy of consideration in poor me and bad me paranoia. Studies have found extremely low rates of bad me paranoia (Chadwick & Trower, 1997; Fornells-Ambrojo & Garety, 2005; Green et al., 2006; Sigmaringa Melo, Taylor, & Bentall, 2006), which suggests that it is quite rare. Clinical experience suggests that people can vary in these beliefs and present a combination of the two. In addition, there is debate about whether or not poor me and bad me paranoia are stable traits or variable characteristics (Sigmaringa Melo, Taylor, & Bentall, 2006). Each of the cognitive models presented in this review allow for the presence of poor me and bad me paranoia but conceptualise them differently. Trower and Chadwick (1995) describe them as stable traits based on the development of either an insecure or alienated self, whereas Bentall et al., (2001) argue that these are variable characteristics. Bentall et al., propose that the type of paranoia experienced by an individual will vary according to circumstances, the types of attributions made,

and the available self-representations. When negative self-schemas are activated and externalising attributions are not made, then bad me paranoia (the belief that persecution is deserved) may arise. Freeman and Garety (2004) describe beliefs about deserving harm in terms of self-schemas, which are relatively stable. Understanding whether or not poor me and bad me paranoia is stable or variable may provide a better understanding of the aspects of the self involved in persecutory delusions, whether these fluctuate, and if so how the fluctuations influence maintenance of and the experience of the delusion (in terms of distress, emotion and self-esteem).

9.1 Differences in aspects of the self in poor me and bad me paranoia

9.1.1 Interpersonal evaluations

Trower and Chadwick (1995) proposed that different patterns of interpersonal evaluations characterise poor me and bad me paranoia. In comparison with a group of depressed individuals, Chadwick and Trower (1997) found that individuals with poor me paranoia perceived similar amounts of other-to-self negative evaluations ("others think I am bad"), made fewer negative self to self evaluations ("I think I am bad"), and made more negative self to other evaluations ("others are bad"). The depressed group believed that others would make negative judgments of them and consequently also evaluated themselves negatively. The poor me paranoia group thought that others would make negative evaluations of them (the threat against the self), but instead of agreeing with this negative evaluation they responded with a negative evaluation of others (the defence against the threat). Trower and Chadwick (1995) see this as a defensive process. The negative evaluation of others prevents a negative evaluation of the self by the self which would lead to lowered explicit self-

esteem. However, not all the people with paranoia in the study demonstrated this pattern of interpersonal evaluations; the people with bad me paranoia showed a similar pattern of interpersonal evaluations to the depressed group.

9.1.2 Self-esteem

A small body of literature indicates an association between bad me paranoia and lower explicit self-esteem compared to people with poor me paranoia (Chadwick, Trower, Juusti-Butler, & Maguire, 2004; Fornells-Ambrojo & Garety, 2005; Green et al., 2006; Trower & Chadwick, 1995). People with bad me paranoia were also shown to have higher levels of depression (Chadwick, Trower, Juusti-Butler, & Maguire, 2004; Sigmaringa Melo, Taylor, & Bentall, 2006). This is consistent with Trower and Chadwick's distinction between the two subtypes of paranoia. There is no research to date on implicit self-esteem in poor me and bad me paranoia.

Differences in interpersonal evaluations (and beliefs about self and others), levels of explicit self-esteem and depression have all been demonstrated between the poor me and bad me group. However, these studies were cross sectional, and it is not clear whether the aspects of self that were measured were stable traits or variable characteristics.

9.2 Stability of poor me and bad me paranoia

Sigmaringa Melo, Taylor, and Bentall (2006) investigated poor me and bad me paranoia, to test the predictions of Trower and Chadwick (1995) and Bentall et al., (2001). Two clinical groups (poor me and bad me paranoia) and a non-clinical control group were assessed. The participants with paranoia were measured on the

perceived deservedness of persecution (PDP) across two or more testing periods. Responses on the PDP showed that the majority of participants thought that they did not deserve persecution (poor me). However, not all participants consistently classified themselves as either poor me or bad me. Twenty out of 38 participants classified themselves as poor me consistently; 5 out of 38 classified themselves as bad me consistently; and 13 out of 38 reported both types of belief. This suggests that for some people bad me or poor me status is unstable. In addition, people who reported poor me paranoia tended to be consistent however those that indicated bad me at any point showed greater variation in their deservedness ratings. If poor me and bad me paranoia are unstable characteristics then this suggests that it is not the development of an alienated or insecure self that leads specifically to traits of poor or bad me paranoia respectively as suggested by Trower and Chadwick (1995). It also has implications for understanding the underlying processes and aspects of self that are implicated in the development and maintenance of persecutory delusions; if beliefs can shift from a conviction that persecution is not deserved to being deserved then this has implications for psychological treatments.

Sigmaringa Melo et al. (2006) divided the poor me and bad me subsets based on the deservedness rating made at the time of the particular psychological measure in question. These authors also analysed their data comparing groups that were consistently poor me with those that had ever indicated bad me paranoia. Few differences were found in the analyses when the groups were classified in these ways. Using the Self to Other Scale, frequency and endorsement of fear of exclusion (insecure self) and fear of intrusion in relationships with others (alienated/engulfed self) were measured. The bad me group scored significantly higher than the poor me group on the frequency subscale of the insecure self. However, there were no other

differences between the two clinical groups on any of the other subscales. Both clinical groups scored significantly higher than the control group on all subscales. Based on Trower and Chadwick's predictions, we would expect to see the poor me group showing more insecure self traits, but this was not the case, and in terms of frequency it was the bad me group that had more insecure self traits. The model would also predict that the bad me group would show more of the alienated/engulfed self traits. Again, this was not found. On measures of sociotropy (the degree to which people judge themselves according to quality of interpersonal relationships, associated with an insecure self) and autonomy (the degree to which people judge themselves in terms of success and independence from others, associated with an alienated self) no differences were found between the poor and bad me groups. Both poor me and bad me scored higher on sociotropy and autonomy measures that the control group. These result do not support the contention that people with poor me paranoia have developed an insecure self and that people with bad me paranoia have developed an alienated self.

For negative events, the poor me group made externalising attributions significantly more than the bad me group and the control group. There was a significant correlation between deservedness ratings and externalising. This result is interesting as, coupled with the variation in deservedness, it provides some support for Bentall et al.,'s hypothesis that if negative self-schemas are activated (and the paranoid defence is not activated) then externalising attributions will not be made and bad me paranoia may arise.

9.3 Summary

Bad me paranoia is described in the literature, although it is relatively rare. Bad me paranoia is associated with lower explicit self-esteem, greater depression, more negative self-to-self evaluations and perceived other-to-self evaluations, in comparison with poor me paranoia. These findings support Trower and Chadwick's predictions in relation to explicit self-esteem, with those who have bad me paranoia reporting lower self-esteem than those with poor me paranoia. The finding that people with poor me paranoia make more negative-other evaluations than people with bad me paranoia, is consistent with Chadwick and Trower's prediction that negative-other evaluations are a defensive strategy to maintain explicit self-esteem for the poor me subtype. However, the reasoning becomes somewhat circular here, since poor me paranoia by definition involves negative-other evaluations, and bad me paranoia does not. Furthermore, there have not yet been any studies on implicit and explicit self-esteem with poor me and bad me paranoia. In order to test the defensive aspect of the model research demonstrating a discrepancy between low implicit and positive explicit self-esteem for the poor me subtype, and low implicit and explicit self-esteem for the bad me subtype will be necessary.

There is some evidence that poor me and bad me paranoia are unstable characteristics. This does not fit with Trower and Chadwick's model, which describes poor me and bad me as stable traits based on the development of either an insecure or alienated self. In addition, no evidence was found for the poor me subtype having constructed an insecure self and the bad me subtype an alienated self.

Overall, poor me and bad me paranoid beliefs have been observed in the research, but they do not appear to be stable traits. It may be that poor me and bad me paranoia are a reflection of beliefs about the deservedness of persecution, which

may fluctuate with time. The content of delusions might reflect levels of explicit self-esteem, as Green et al., (2006) suggest, so those with lower self-esteem may be more likely to believe they deserve harm and those with higher self-esteem feel less deserving of harm. This would suggest that as explicit self-esteem fluctuates, beliefs about deservedness of harm also fluctuate, and there is no need to posit a defensive process. This is consistent with the TACM (Freeman & Garety), which states that persecutory delusions will be shaped and maintained by emotions, and beliefs about the self, others and the world.

10 Conclusions

10.1 Self-esteem

This review has found inconsistent results for explicit self-esteem in persecutory delusions. In a few studies, explicit self-esteem is comparable with non-clinical participants, but most often self-esteem is lower in clinical groups. In one study explicit self-esteem was lower than that of a depressed group. Explicit self-esteem is lower in those who believe they deserve punishment (bad me), in comparison to those who feel that they are unfairly persecuted (poor me). There is also evidence that explicit self-esteem may fluctuate in people with persecutory delusions. The two studies reviewed here that have investigated implicit self-esteem both found low implicit self-esteem in persecutory delusions compared to people with depression and healthy controls. These studies also demonstrated a discrepancy between low implicit and more positive explicit self-esteem.

In terms of providing support for the three cognitive models described in the review, the research on self-esteem is inconclusive. The ASRC (Bentall et al., 2001) predicts that persecutory delusions and blaming others, rather than the self for

negative events, prevents low self-esteem from reaching conscious awareness. In this respect, the findings of discrepancies between implicit and explicit self-esteem offer some support. However, it is not clear why levels of explicit self-esteem fluctuate. Bentall et al. argue that this is due to variations in the attribution self-representation cycle, but there has been no research undertaken that investigates how self-esteem and attributions are linked in persecutory delusions, or whether they fluctuate together. Similarly, with Trower and Chadwick's (1995) proposed two subtypes of paranoia, supporting evidence from the self-esteem literature is not clear. Although there is evidence to suggest that people with the bad me subtype have lower self-esteem than people with the poor me subtype, this approaches a circular argument, and there has been no research undertaken investigating implicit and explicit self-esteem in poor me and bad me paranoia to date. A low implicit-high explicit self-esteem discrepancy for the poor me subtype would provide support for the hypothesised defensive purpose of the poor me persecutory delusion. The research on implicit and explicit self-esteem neither supports nor disconfirms the TACM (Freeman & Garety, 2004), as the model does not incorporate these ideas. However, research investigating levels of explicit self-esteem has found links between delusional beliefs with self-diminishing content, lower self-esteem and depression; a finding that the authors suggest is consistent with the TACM, where emotions and beliefs about the self, world and others shape threat beliefs.

10.2 Schematic beliefs

In terms of schemas there is consistent evidence that negative beliefs about others (hostility and threat) and about the self (inferiority and vulnerability) are related to levels of persecutory ideation, and that more negative beliefs are associated

with more severe and distressing persecutory ideation. Interpersonal traumatic experiences are linked to paranoia, and are mediated by negative-self and other beliefs. Causal relationships have not yet been established, so it is not clear whether schematic beliefs give rise to paranoia, or whether paranoia leads to the development and maintenance of negative self and other beliefs. Bentall et al. (2001) and Trower and Chadwick (1995) both predict underlying negative schema, but for all people with persecutory delusions (except people with bad me paranoia) a defensive process is assumed to prevent these negative schema from coming in to conscious awareness. Research using explicit self-report measures that found negative self-schema in people with persecutory delusions would be consistent with the TACM, which assumes that schemas about hostility and threat from others/the world and schema about self inferiority and vulnerability help to shape persecutory explanations of anomalous experiences, without recourse to defensive functions.

10.3 Believed deservedness of harm

There is evidence that poor me and bad me subtypes exist in persecutory delusions; however they seem not to be stable traits. The beliefs that characterise poor me (I don't deserve to be harmed) and bad me (I deserve to be harmed) can occur at different times in the same individual. Sigmaringa Melo et al. (2006) argue that the attribution self-representation model could incorporate variation in beliefs about deservedness of persecution, as when the defensive process of making external attributions is not activated, negative self-schema may come into conscious awareness and beliefs about deserving punishment may arise. The TACM also allows for variations in believed deservedness of persecution, based on the premise

that threat beliefs are shaped by emotions and beliefs about the self, world and others, and these may vary.

10.4 Summary

Overall, there is broad support for the threat anticipation cognitive model of persecutory delusions, particularly when research on self-schemas is considered. There is also some support for the prediction of the attribution self-representation model in terms of an implicit-explicit self-esteem discrepancy. However, there are still many areas where research evidence is lacking, and further investigations could lead to an improved understanding of persecutory delusions.

10.5 Areas for further investigation

Further research on implicit self-esteem, using valid measures such as the IAT, will be important to establish previous findings, and it will also be useful to compare implicit self-esteem in people with poor me and bad me paranoia. Experimental and longitudinal research would help to unravel some of the queries relating to cause and effect. For example, studies measuring self-esteem and attributional processes, using a manipulation to influence either of these variables would help to establish links between self-esteem and attributions as predicted by the ASRM. In relation to the TACM, longitudinal research assessing negative self-schemas and emotional dysfunction during first incidences of persecutory delusions and then at subsequent times would provide more information about causal processes.

The National Institute for Clinical Excellence (2002) recommends that 100% of people with Schizophrenia are offered Cognitive Behavioural Therapy (CBT).

Insofar as CBT is based on disorder specific models, it will be essential that differences between the current models of persecutory delusions are tested and resolved as far as possible, in order that clinical interventions are most likely to be effective in reducing the distress and disability associated with these beliefs.

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Empirical Paper

Persecutory delusions and the self: An investigation of implicit and explicit self-esteem

The literature review follows the submission requirements of the journal Cognitive Neuropsychiatry (Appendix 11).

Abstract

Introduction: Persecutory delusions are proposed to be constructed as a defence against low self-esteem reaching conscious awareness. Key predictions of this proposal are that individuals will have low implicit self-esteem and positive explicit self-esteem. However support from empirical research is inconsistent. This study aims to test the predictions regarding implicit and explicit self-esteem in persecutory delusions.

Methods: 16 people with persecutory delusions and 20 healthy control participants were recruited. The Implicit Association Test (IAT) was used to measure implicit self-esteem and the Rosenberg self-esteem scale was used to assess explicit self-esteem. Positive and negative self and other schemas were also assessed using the Brief Core Schema Scales. An attempt has been made to overcome some of the methodological concerns of past research through the inclusion of a neutral IAT, and measures of depression, anxiety and social anxiety as covariates.

Results: People with persecutory delusions had positive implicit self-esteem, comparable to that of the control group. Explicit self-esteem was lower for the persecutory delusion group, although this was largely attributable to increased depression and anxiety. Negative self and other schemas were higher in the clinical group.

Conclusions: The results do not support the contention that persecutory delusions defend against negative self-representations and low self-esteem reaching conscious awareness. Non-defensive cognitive models are discussed as an alternative way of understanding persecutory delusions.

1. Introduction

Persecutory delusions are characterised by the belief that others intend psychological, physical or social harm to the self (Freeman & Garety, 2000). Cognitive models have therefore focused on beliefs about the self and others, in order to understand the formation and maintenance of persecutory delusions. The attribution self-representation cycle (ASRC) proposes that individuals with persecutory delusions have latent negative beliefs about the self, and that the persecutory delusion provides a defence against low implicit self-esteem reaching conscious awareness (Bentall, Corcoran, Howard, Blackwood, & Kinderman, 2001). To date the research evidence supporting this contention is inconclusive (Garety & Freeman, 1999), which is partly due to methodological difficulties measuring implicit self-esteem. The focus of this study is on the investigation of implicit and explicit self-esteem in people with persecutory delusions, in order to test the defensive hypothesis as well as overcoming some of the methodological problems in the assessment of implicit self-esteem.

1.1 Persecutory delusions as a defence

People with persecutory delusions are predicted to have low implicit self-esteem (Bentall et al., 2001). Implicit self-esteem is defined as an automatic and non-conscious evaluation of the self (Greenwald & Banaji, 1995). The ASRC predicts that people who are vulnerable to persecutory delusions make external-personal attributions (blame other people) for the occurrence of negative self-referent events. Through attributing blame to others for negative events the individual's conscious self-view (or explicit self-esteem) remains positive, while negative self beliefs and low implicit self-esteem remain latent. This is the defence. Persecutory delusions are hypothesised to be maintained through cyclical links between attributions and self-

representations. While attributing blame to others for negative events would preserve explicit self-esteem, this process would also lead to internal representations of others as malevolent and hostile, and a higher likelihood of making future external attributions for negative events. This process maintains the delusion. Key predictions of this model, therefore, are that there will be a discrepancy between implicit and explicit self-esteem, specifically that implicit self-esteem will be low in comparison with explicit self-esteem, and that people with persecutory delusions will have a tendency to attribute blame to others, and view others negatively.

1.2 Self-esteem research

Studies investigating explicit self-esteem in persecutory delusions have found inconsistent results. Some report low explicit self-esteem (Bowins & Shugar, 1999; Freeman et al., 1998; Green et al., 2006; Smith et al., 2006), whereas others report positive explicit self-esteem in comparison to people with depression and healthy controls (Candido & Romney, 1990; Lyon, Kaney & Bentall, 1994). Bentall et al. (2001) argue that this is due to the fluctuating nature of attributions and self-representations. There may be times when blaming others for a negative event is not possible due to situational factors (e.g. there is no other person to blame), and therefore negative self-esteem reaches conscious awareness. Fluctuations in explicit self-esteem (Thewissen et al., 2007) and attributional style (Bentall & Kaney, 2005) have been demonstrated in people with persecutory delusions. However, there is no evidence demonstrating that they fluctuate together. If persecutory delusions do not provide a complete defence against low implicit self-esteem reaching conscious awareness, then the results of studies investigating explicit self-esteem alone are difficult to interpret in relation to this model. A discrepancy between low implicit

and relatively high explicit self-esteem would be expected according to this model. However, the size of the discrepancy may vary when the persecutory delusion only provides partial protection.

1.3 Implicit self-esteem

There are methodological difficulties with assessing implicit self-esteem, as people with persecutory delusions will be motivated to prevent negative self-esteem reaching conscious awareness according to the attribution self-representation model (Garety & Freeman, 1999). Therefore, methods used to assess implicit self-esteem will need to penetrate this defence. Measuring implicit self-esteem has been problematic in research on persecutory delusions. Lyon, Kaney and Bentall (1994), and Kinderman (1994) attempted to measure implicit self-esteem in people with persecutory delusions using an implicit measure of attributional style and an emotional stroop task. However, in both studies the measures chosen may not have been accessing implicit self-esteem. Both studies are described below.

Lyon et al. (1994) compared a group with persecutory delusions and a group with depression, using the Pragmatic Inference Test to assess implicit attributional style, and an explicit measure of attributional style. They proposed that attributional style reflects self-representations; this idea is based on findings which show that people with negative self-representations tend to make internal attributions for negative events and external attributions for positive events, whereas people with positive self-representations make internal attributions for positive events and external attributions for negative events. On the explicit measure, people with persecutory delusions made more external attributions for negative events (they blamed others), and made more internal attributions for positive events. However, on

the implicit measure, people with persecutory delusions responded similarly to the depressed group, making internal attributions for negative events and external attributions for positive events. Lyon et al. reported this as evidence for implicit negative self-representations and explicit positive self-representations in people with persecutory delusions. Although an implicit-explicit discrepancy was demonstrated, as Garety and Freeman (1999) argue, the discrepancy was in attributional style, and does not necessarily indicate levels of self-esteem.

The emotional stroop task is another paradigm that has been used to measure implicit self-esteem (Kinderman, 1994). Participants had to name the colour of positive, negative and neutral personally descriptive words. The assumption behind this task is that words with emotional salience, will produce slower response times because they will interfere more with responding. People with persecutory delusions and depression responded more slowly to negative words than healthy controls. This indicated that the negative words had higher emotional salience for both patient groups. However, it does not necessarily follow that higher emotional salience for negative words, indicates low implicit self-esteem. There may be a number of reasons why negative words were more emotionally salient (e.g. increased levels of depression), not only due to possible low implicit self-esteem.

Kinderman (1994) also used an explicit measure of self-esteem, where participants had to rate the words used in the stroop task on how well they described the self. The group with persecutory delusions endorsed more of the positive words than the group with depression; however, there was no difference between the groups in numbers of negative words endorsed. Kinderman suggested that this was evidence for higher explicit self-esteem, and an overall implicit-explicit discrepancy in self-esteem in the group with persecutory delusions. However, Garety and Freeman

(1999) disagree and argue that as the group with persecutory delusions did not differ from the depressed group on the numbers of negative words endorsed, and that both groups endorsed more negative words than the healthy control group, that the results do not necessarily indicate positive explicit self-esteem for the group with persecutory delusions. It is difficult to come to firm conclusions about the importance of this study as a test of the attribution self-representation model, as the measure employed may not have tapped self-esteem, and the discrepancy between implicit and explicit measures was not convincing.

In summary, although the study by Lyon et al. (1994) demonstrated a discrepancy between implicit and explicit attributional style for people with persecutory delusions, neither Lyon et al.'s nor Kinderman's (1994) study provide good evidence of low implicit self-esteem in people with persecutory delusions, as it is questionable whether the paradigms used actually measure implicit self-esteem. A more robust test of the attribution self-representation model requires a better measure of implicit self-esteem. The present study uses the Implicit Association Test (IAT), because it is the most appropriate measure of implicit self-esteem currently available (Bosson, Swan & Pennebaker, 2000).

1.4 Implicit Association Test

The self-esteem Implicit Association Test (SE-IAT) measures the strength of implicit associations between target concepts ("self" or "other" words) and attribute concepts ("positive" or "negative" words) (Greenwald & Farnham, 2000). The assumption is that when stimulus words are presented, respondents will be quicker to react when target and attribute concepts sharing the same response key are cognitively related. Participants with higher implicit self-esteem should respond

more quickly when self and positive words share one response key. In healthy populations a consistent positive bias has been demonstrated (Greenwald & Farnham, 2000; Jordan, Spencer, Zanna, Hoshino-Browne & Correll, 2003). The SE-IAT has also been used with clinical groups; people with depression (Cai, 2003; De Raedt, Schacht, Franck, & De Houwer, 2006), and social anxiety (Tanner, Stopa, & De Houwer, 2006).

In comparison with a number of other implicit measures, the self-esteem IAT has been shown to have the best reliability (Bosson et al., 2000). The IAT therefore, may be the best currently available measure of implicit self-esteem, overcoming some of the previous methodological difficulties cited, and provide a more accurate picture of implicit self-esteem in people with persecutory delusions. In addition, the IAT reduces self presentation bias (Egloff & Schmukle, 2002) and does not require introspection on the part of respondents (Greenwald et al., 2002), suggesting it would be a useful measure for people with persecutory delusions, who are proposed to be motivated to prevent low implicit self-esteem reaching conscious awareness.

Two studies have used the self-esteem IAT with people who have persecutory delusions (McKay, Langdon & Coltheart 2007; Moritz, Werner & von Collani, 2006). In McKay et al.'s study, a group with persecutory delusions had positive implicit self-esteem, although this was significantly lower than that of a healthy control group and a group with remitted persecutory delusions. Consistent with this finding, Moritz et al. found a group with persecutory delusions had negative implicit self-esteem, and that this was significantly lower than the positive implicit self-esteem of a healthy control group and a group with depression. However, there was no difference in levels of implicit self-esteem between the persecutory delusion group and a group with schizophrenia and no persecutory delusions in this study.

Overall, the results of these two studies suggest that people with persecutory delusions have lower implicit self-esteem than healthy controls, and some clinical groups. This is consistent with the ASRC, which predicts low implicit self-esteem.

Both studies used the Rosenberg Self-Esteem Scale (RSE) (Rosenberg, 1989) to measure explicit self-esteem. McKay et al. (2007) found that the group with persecutory delusions had lower explicit self-esteem than the healthy controls and the remitted persecutory delusion group. If persecutory delusions defend against implicit self-esteem reaching conscious awareness, then this finding is contrary to the predictions of the ASRC. However, when depression was included as a covariate, the differences in levels of explicit self-esteem between the groups disappeared. McKay et al. report a discrepancy between low implicit and normal levels of explicit self-esteem (with depression as a covariate), and that this supports the delusions as a defence hypothesis.

Similarly, Moritz et al. (2006) found that the group with persecutory delusions had lower explicit self-esteem than a healthy control group, but there was no difference in levels of explicit self-esteem between the persecutory delusion group and the depressed group. Again, this does not suggest preserved levels of explicit self-esteem as would be predicted by the ASRC. However, as the persecutory delusion group had higher explicit self-esteem than a group with schizophrenia and no persecutory delusions, Moritz et al. report a discrepancy between low implicit self-esteem and higher explicit self-esteem (at least in relation to people with schizophrenia and no persecutory delusions). They report this as evidence for persecutory delusions as a defence against low self-esteem reaching conscious awareness.

Moritz et al. (2006) and McKay et al. (2007) both report that their studies provide evidence for a discrepancy between low implicit and higher explicit self-esteem in people with persecutory delusions, and that this supports Bentall et al.'s hypothesis that persecutory delusions provide a defence against low self-esteem reaching conscious awareness. However, these studies have a number of limitations, which are discussed below together with comments on how the present study intends to overcome them.

A measure of depression was used as a covariate by McKay et al. (2007), however anxiety and social anxiety were not assessed in either McKay et al. or Moritz et al.'s (2006) studies. Levels of depression and anxiety are often high in people with persecutory delusions (Fowler et al., 2006; Smith et al., 2006), and social anxiety may influence responding on self-esteem tasks (de Jong, 2002), with higher levels of social anxiety associated with lower levels of self-esteem. It will be important to account for the influence of these variables when investigating implicit and explicit self-esteem. Neither study used a neutral IAT to ensure that people with persecutory delusions responded in the same direction as normal controls. Comparing levels of implicit self-esteem between groups using the IAT is only useful if it is clear that both groups respond similarly on a neutral task.

The study reported here aims to investigate implicit and explicit self-esteem in people with persecutory delusions, in order to test the predictions of the ASRC. To overcome some of the limitations of previous studies, measures of depression, anxiety, and social anxiety will be included. A check will also be included that people with persecutory delusions respond in the same direction as healthy controls on a neutral IAT. An additional change from McKay et al.'s (2007) study will be to include evaluative words (e.g. worthy, disliked), rather than affective words (e.g.

rainbow, death) in the IAT, in order to establish whether similar results will be found. Both evaluative (Tanner et al., 2006) and affective (Greenwald & Farnham, 2000) words have been used in past SE-IAT studies.

1.5 Self and other schema.

If the attribution self-representation model is correct, then people with persecutory delusions should have high levels of negative-other beliefs and low levels of negative-self beliefs. The Brief Core Schema Scales (BCSS) (Fowler et al., 2006), are a self-report measure of negative and positive self and other schema, which have been used to assess people with persecutory ideation (in non-clinical populations). The results of these studies have shown that more negative-self and negative-other schema are related to greater levels of persecutory ideation (Gracie et al., 2007; Smith et al., 2006). The finding of greater negative-self beliefs partially contradicts the ASRC; however, this is consistent with the research evidence demonstrating low levels of explicit self-esteem in people with persecutory delusions. This study will assess a clinical group with persecutory delusions using the BCSS. As previous findings of increased negative-self schema in people with persecutory ideation are inconsistent with the attribution self-representation model, it will be important to assess a clinical group in order to see if a similar pattern emerges.

1.6 Hypotheses

H1 People with persecutory delusions will have lower implicit self-esteem than a healthy control group.

H2 There will be a discrepancy between implicit and explicit self-esteem in the persecutory delusion group but not in the control group.

H3 People with persecutory delusions will report more negative-other schemas than the control group.

2. Method

2.1 Ethics

Ethics approval was given by the School of Psychology Ethics committee (appendix 1) and an NREC committee (appendix 2). Approval was also granted from the NHS Trust in which the research took place. The study was given research governance approval from The University of Southampton.

2.2 Design

The study used a cross sectional design. Two groups were assessed: a group consisting of people with current persecutory delusions and a control group of people with no psychiatric difficulties. The dependent variables were measures of implicit and explicit self-esteem, and measures of positive and negative beliefs about the self and others. Measures of depression and anxiety, including social anxiety, were used as covariates because all of these constructs could potentially have influenced the main variables under study. Social anxiety may influence responding on self-esteem tasks (de Jong, 2002), and people with persecutory delusions often have high levels of anxiety and depression (Fowler et al., 2006; Smith et al., 2006).

2.3 Participants and Recruitment

Persecutory Delusion Group

Twenty-two people with current persecutory delusions were recruited. Participants were excluded if English was not their first language. Two participants were excluded from the study as they were unable to complete the measures. Participants were recruited from three community mental health teams (CMHTs) within a local NHS Trust. Healthcare professionals working within the CMHTs

identified patients with current persecutory delusions who met the inclusion criteria. Patients interested in taking part were contacted by the researcher.

Control Group

Twenty people were recruited to the control group via an advertisement at a local University (appendix 3). Eight of the controls were students and 12 were employed by the University. In the selection of the control group an attempt was made to find people of equivalent age, sex and verbal ability as the group with persecutory delusions. This was to minimise differences between the two groups as far as possible, in order to ensure that any differences in levels of the dependent variables were more likely to be due to the presence or absence of persecutory delusions, rather than age, sex or verbal ability.

2.4 Measures

2.4.1 Screening Measure

The Structured Clinical Interview for DSM-IV-TR Axis I disorders (SCID-I) (First, Spitzer, Gibbon, & Williams, 2002) assesses Axis I psychiatric disorders from the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) (American Psychiatric Association, 1995). Modules B (psychotic and associated symptoms) and C (psychotic disorders) of the SCID-I were given to the clinical sample. Persecutory delusions were assessed using item B2 of the SCID-I. Participants were asked to indicate if they 1) believed that harm was occurring, or was going to occur, and 2) believed that the persecutor had the intention to cause harm. These criteria were set out by Freeman and Garety (2000) to ensure that persecutory delusions were classified consistently in research. The control group were given the SCID-I

psychotic screen (module B/C) to ensure they had no psychotic symptoms or disorders.

2.4.2 Implicit Self-Esteem

The Implicit Association Test (IAT) is a computerised reaction time measure of implicit associations between concepts (Greenwald, McGhee & Schwartz, 1998). Words representing target and attribute concepts are presented on a screen one at a time and participants indicate the category to which they belong using a left and a right response button. When target and attribute concepts sharing the same response key are cognitively related participants respond more quickly.

Two IAT tasks were used in this study; a self-esteem IAT to measure levels of implicit self esteem and a neutral IAT to check that the persecutory delusion group would respond in the same direction as normal controls. On the self-esteem IAT more positive implicit self-esteem is indicated by faster responding when *self* + *positive* words share one response key (and *other* + *negative* words share the second response key), than when *self* + *negative* word share one response key (and *other* + *positive* share the second response key) (Greenwald & Farnham, 2000). On the neutral IAT all participants are expected to respond more quickly when *flower* + *positive* words share a response key than when *insect* + *positive* words share a response key (Greenwald et. al., 1998). This is because *flower* + *positive* are considered more evaluatively compatible than *insect* + *positive*. Bosson, Swann and Pennebaker (2000) reported test re-test reliability of .69 for the self-esteem IAT.

Self-esteem IAT words:

In order to select evaluative words relevant to the self-esteem of people with persecutory delusions 32 words (16 positive and 16 negative words from the self-esteem IAT developed by Tanner, Stopa, and De Houwer, 2006) were rated by 8 clinical psychologists and trainees for how well they represented a positive or negative assumption about the self in people with persecutory delusions. Ratings were made on a scale of 1 to 10 (1=does not represent to 10=highly represents). The 8 positive and 8 negative words with the highest scores (most representative) were selected. The positive attribute words were: clever, charismatic, intelligent, interesting, deserving, adored, loveable, and worthy. The negative attribute words were: unlovable, stupid, worthless, incompetent, disliked, inadequate, inferior, and useless. The valence of the 16 words selected were rated by 10 people on a -3-+3 scale, where -3 represented "very negative" and +3 represented "very positive". The positive and negative words did not significantly differ on representativeness ($t(14)= 1.624$, $p=.127$), number of syllables ($t(14)= 0$, $p=1.000$), degree of valence (either positive or negative) ($t(14)= -.084$, $p=.934$) or written word frequency ($t(14)= .739$, $p=.472$). The target concepts of *self* and *other* were used. The self words were: I, me, mine and participant's first name. The other words were: his, hers, they, and them.

Neutral IAT words

The neutral IAT used the target concepts *flower* and *insect* and the attribute concepts were affective *positive* and *negative* words following Greenwald et al (1998). The original flower insect IAT used 25 words for each target and attribute category. A reduced number of target and attribute words were chosen from the original flower insect IAT so that the same number of words were used for both IATs

in this study. The flower and insect words (Greenwald et al., 1998) were rated by 10 people in terms of familiarity (0=not at all familiar to 10=very familiar). The four most familiar flowers and insects were selected. These were: daffodil, bluebell, rose, daisy, ant, spider, bee, and caterpillar. The positive and negative words (Greenwald et al., 1998) were rated by 10 people on how positive or negative they found them (3="very negative" to +3="very positive"). The 8 most negative and 8 most positive words were selected for use in the study. The positive words were: peace, love, laughter, friend, cheer, family, happy, and honest. The negative words were: grief, murder, disaster, hatred, death, evil, cancer, and assault.

There were no significant differences between the insect and flower words in terms of familiarity ($t(6)=.562$, $p=.595$), length ($t(6)=.232$, $p=.824$), or number of syllables ($t(6)=0$, $p=1.000$). There were no significant differences between the positive and negative words in terms of length ($t(14)=-.411$, $p=.688$), degree of valence ($t(14)=.860$, $p=.404$), syllables ($t(14)=-.720$, $p=.483$), or written word frequency ($t(14)=1.346$, $p=.200$).

IAT Presentation

The IAT was presented on a laptop computer with 60Hz refresh rate. Participants first completed the self-esteem IAT and then the flower/insect IAT. The self-esteem and the flower/insect IAT task used the same order of presentation. Participants categorised a series of words (target and attribute) randomly presented on the centre of the computer screen, by pressing either the left or right button on a response box. The word appeared in white on a blue background. Reminders of which categories the left and right keys represented remained on the screen throughout the tasks. Each word appeared on the screen until a response was made. If

a word was incorrectly categorised a red X appeared underneath the word until the participant pressed the correct response button. Participants completed 7 categorisation blocks. Table 1 shows the order of presentation for the self-esteem IAT.

Table 1: Order of presentation of the IAT tasks

Block	Function	Left response key	Right response key
1 (16 trials)	Practice	Self words	Other words
2 (16 trials)	Practice	Negative words	Positive words
3 (16 trials)	Practice	Self words + Negative words	Other words + Positive words
4 (40 trials)	**Test**	Self words + Negative words	Other words + Positive words
5 (16 trials)	Practice	Other words	Self words
6 (16 trials)	Practice	Other words + Negative words	Self words + Positive words
7 (40 trials)	**Test**	Other words + Negative words	Self words + Positive words

The presentation of the blocks was counterbalanced across the participants to control for task order effects. Presentation of the congruent block first (*self* + *positive* and *other* + *negative*) can produce a larger IAT effect, and presentation of the incongruent block first (*self* + *negative* and *other* + *positive*) a smaller effect (Farnham, Greenwald & Banaji, 1999). Half of the participants in each group were presented with the tasks as set out in Table 1, with the incongruent blocks first. For

the remaining participants, the self and other words were assigned to opposite response keys, so that the congruent blocks were presented first.

The neutral (flower/insect) IAT followed the same presentation pattern; half the participants were presented with the incongruent task first (*flower* + *negative* on the left key, and *insect* + *positive* on the right key) and the other half of participants were presented with the congruent task first (*insect* + *negative* on the left key, and *flower* + *positive* on the right key). Order of presentation across the two IAT tasks was the same for each participant, that is, either the congruent block was presented first on both IATs or the incongruent block was presented first.

2.4.3 Explicit Self Esteem

The Rosenberg Self Esteem Scale (RSE) (Rosenberg, 1989) is a widely used questionnaire measure of explicit global self esteem. The scale consists of 10 items, for which respondents indicate their degree of agreement on a 4 point Likert scale (strongly agree through to strongly disagree). Higher scores indicate greater self-esteem. The RSE is commonly used in research and clinical practice (Blascovich & Tomaka, 1991) and is a well validated measure of self-esteem (Winters, Myers & Proud, 2002).

2.4.4 Positive and Negative Beliefs about the Self and Others

The Brief Core Schema Scales (BCSS) (Fowler et al., 2006) measure positive and negative beliefs about the self and others. They consist of 24 items, divided into four categories; negative–self ("I am worthless"); positive-self ("I am respected"); negative-others ("Others are devious"); positive-others ("Others are trustworthy"). Participants indicate whether they hold the belief using yes/no responses. If the

response is "yes" participants rate the strength of their belief on a 1-4 scale, where 1="slightly believe" and 4="strongly believe". Test-retest reliability for the negative-self, positive-self, negative-other and positive-other subscales were r=0.84, 0.82, 0.7, and 0.82 respectively (Fowler et.al., 2006).

2.4.5 Social Anxiety

The Social Interaction Anxiety Scale (SIAS) (Mattick & Clarke, 1998) consists of 20 items about behaviours and fears in social situations. Respondents indicate how much each item is characteristic of them on a five point likert scale (where 0 ="not at all" and 4 ="extremely"). The SIAS has been developed and validated on both non-clinical populations and clinical groups. It has moderate to high levels of internal consistency and test-retest reliability, and in terms of validity, correlated well with established measures of social anxiety in both clinical and non-clinical groups (0.66-0.81) (Mattick & Clarke, 1998).

2.4.6 Depression, Anxiety and Stress

The Depression Anxiety Stress Scale-21 (DASS-21) (Lovibond & Lovibond, 1995) is a 21 item measure; it is divided into 3 scales (7 items each) measuring depression, anxiety and stress. A measure of overall negative emotional symptoms is obtained using the three subscales. Participants indicate how much each statement applied to them over the previous week on a scale of 0-3, where 0 represents "did not apply to me at all" and 3 represents "applied to me very much". The DASS-21 has been validated on clinical and community samples (Antony, Bieling, Cox, Enns, & Swinson, 1998). There were significant correlations between the anxiety scale and established measures of anxiety (rs = 0.81 to 0.84) and significant correlations

between the depression scale and established measures of depression (*rs* = 0.74 to 0.79) (Antony et al, 1998; Brown, Chorpita, Korotitsch, & Barlow, 1997; Lovibond & Lovibond, 1995).

2.4.7 Intellectual Skills

The Senior All-Multiple-Choice version of the Mill Hill Vocabulary Scale (MHV) (Raven, Raven & Court, 1998) was used in this study to assess intellectual skills/educational attainment. It requires respondents to work through a list of 68 words and select the meaning of the word from 6 multiple choice answers. The MHV has good test-retest reliability for adults (reliability coefficients ranging from .90 to .98; Raven, Raven & Court, 1998). As the IAT is a word reading task it was important to know whether the clinical and control groups have similar abilities before making comparisons between groups.

2.5 Procedure

Participants from the clinical sample were seen within NHS settings and the control group were seen at a local University. All participants were seen in private rooms. Participants were provided with information sheets about the study (appendix 4 and 5). All participants signed consent forms before they took part in the research (appendix 6 and 7). The SCID-I was conducted first, followed by the IAT and then the self-report measures. A verbal and written debrief (appendix 8 and 9) was provided at the end of participation.

3. Results

Statistical analysis was conducted with SPSS, version 15.0. A priori power calculations (based on data from McKay et al. (2007) & Moritz et al. (2006)) indicated that the required sample size for each group was between 4 and 22 participants in order to achieve a power level (1-β) of between 0.96-0.98. Data from 16 clinical and 20 control participants was analysed in this study. A minimum statistical level of 0.05 was set for all tests.

3.1 Data screening

Kolmogorov-Smirnov tests for normality of distribution were conducted on all data. The SIAS, and the Negative Self and Other subscales from the BCSS were not normally distributed in the control group ($P<0.05$). Square root transformation of the SIAS resulted in normal distribution for both groups; the transformed data is therefore used in analysis. Data transformation did not result in normal distributions for the negative self and other subscales for the control group. It will be important to be aware of this in data analysis, although ANOVA is reported to be robust even when assumptions are violated (Howell, 2004). Where Levene's test for homogeneity of variance is significant, values of significance are reported with equal variance not assumed.

3.2 Group Characteristics

In the clinical group 16 out of 20 participants reported current persecutory delusions on the SCID-I and met the two criteria for persecutory delusions as set out by Freeman and Garety (2000). The following analyses have been conducted excluding the 4 participants who did not report current persecutory delusions. There

were 14 male and 2 female participants. Results of the SCID-I indicated that 14 participants had a diagnosis of schizophrenia, one had a diagnosis of schizoaffective disorder, and one had diagnosis of psychotic mood disorder. The mean age of illness onset was 24.63 years (*SD*=7.91), and the mean duration of illness was 17.25 years (*SD*=8.89). There were 8 men and 12 women in the control group. No participants in the control group had psychotic symptoms or disorders as assessed by the SCID-I psychotic screen. There was a significant difference in the numbers of males and females in each group, $\chi 2$ (1, N =36) = 8.44, p<.05. There were fewer males and more females in the control group than the persecutory delusion group.

Table 2 shows means and standard deviations for age, scores on the MHV, DASS-21 and SIAS.

Table 2: Group characteristics - Means and Standard Deviations

	Persecutory Delusion Group		**Control Group**		
Variable	Mean	*SD*	Mean	*SD*	*t*
Age	41.69	11.09	29.50	11.42	3.22**
MHV	48.00	9.89	59.05	7.62	-3.79**
DASS-21	51.00	23.55	14.00	12.43	5.68**
SIAS (square root transformed)	4.92	1.70	3.51	0.95	3.15**

SD=Standard Deviation *p<.05 **p<.01

The group with persecutory delusions was significantly older and lower in IQ (MHV) than the control group. Age and scores on the MHV were therefore used as covariates in all analyses; where these variables altered the significance of results the analysis of covariance (ANCOVA) statistic is reported. The group with persecutory

delusions were also higher in social anxiety (SIAS) and higher in negative emotional symptoms (DASS-21) than the control group. In psychopathology research the use of ANCOVA may be problematic (Miller & Chapman, 2001), as when there is comorbidity between disorders this suggests that they are not entirely distinct concepts. Therefore clinically, it may be unhelpful to separate them statistically. For this reason, analyses of the dependent variables have been conducted with and without scores on the SIAS and DASS-21 as covariates.

3.3 Implicit Self-Esteem

The improved algorithm (Greenwald et al., 2003) was used to score the IAT. Data from blocks 3, 4, 6 and 7 were used. Trials with response latencies of over 10,000ms were excluded. Participants who responded more quickly than 300ms on over 10% of trials are excluded according to the improved algorithm. No participants met this exclusion criterion. The mean of correct latencies was calculated for each block, and incorrect latencies were replaced by the mean block latency plus 600ms. The mean of each block was calculated, and the difference obtained from the practice-incongruent block minus the practice-congruent block, and the test-incongruent block minus the test-congruent block. The resulting scores were divided by the pooled standard deviations to calculate the IAT-D effect. Stronger associations between *self* + *positive* words (relative to *other* + *negative* words) are indicated by more positive IAT-D effect scores. Stronger associations are thought to reflect more positive implicit self-esteem (Greenwald et al., 1998; Greenwald et al., 2003).

Table 3 shows the mean response times for the congruent and incongruent trials of the self-esteem and flower-insect IAT, and the IAT-D effect for the persecutory delusion and control group.

Table 3: Mean scores (ms), and standard deviations of IAT response times and IAT-D effect based on the improved algorithm

IAT measurement	Group	Mean (*SD*)	
		Self-Esteem IAT	**Flower-Insect IAT**
Congruent Block Latencies (ms)	PD	1244.94 (121.89)	1143.67 (95.28)
	C	863.22 (49.78)	855.66 (46.84)
Incongruent Block Latencies (ms)	PD	1875.27 (237.85)	1505.81 (120.97)
	C	1151.75 (72.84)	994.68 (35.90)
IAT-D Effect (Improved Algorithm)	PD	0.93 (1.01)	0.84 (0.71)
	C	0.48 (0.45)	0.32 (0.48)

PD = Persecutory Delusion Group; C = Control Group; *SD*=Standard Deviation

Investigation of the IAT-D effect on the self-esteem IAT revealed no significant difference between the persecutory delusion group and control group ($t(34) = 1.77$, $p=0.085$). Both groups showed a positive implicit self-esteem bias as demonstrated by positive IAT-D effect scores. Presentation of the congruent and incongruent blocks were counterbalanced across participants in order to overcome potential task order effect biases. Exploration of the data revealed no significant difference in the size of the IAT-D effect for participants who completed the congruent block first ($M=0.51$, $SD=0.41$) and participants who completed the incongruent block first ($M=0.89$, $SD=1.04$) ($t(34)=1.49$, $p>0.05$).

An alternative way of scoring the IAT is with the conventional algorithm (Greenwald, McGhee & Schwartz, 1998). Previous IAT studies investigating persecutory delusions, have used the conventional algorithm (Moritz et al., 2006), and for the purposes of comparison the self-esteem IAT was also scored using this

method. Data from blocks 4 and 7 were used, excluding the first 2 trials of each block. Response latencies less than 300ms and greater than 3000ms were recoded to these values respectively. The latencies were log transformed, and means calculated for each block (congruent and incongruent).

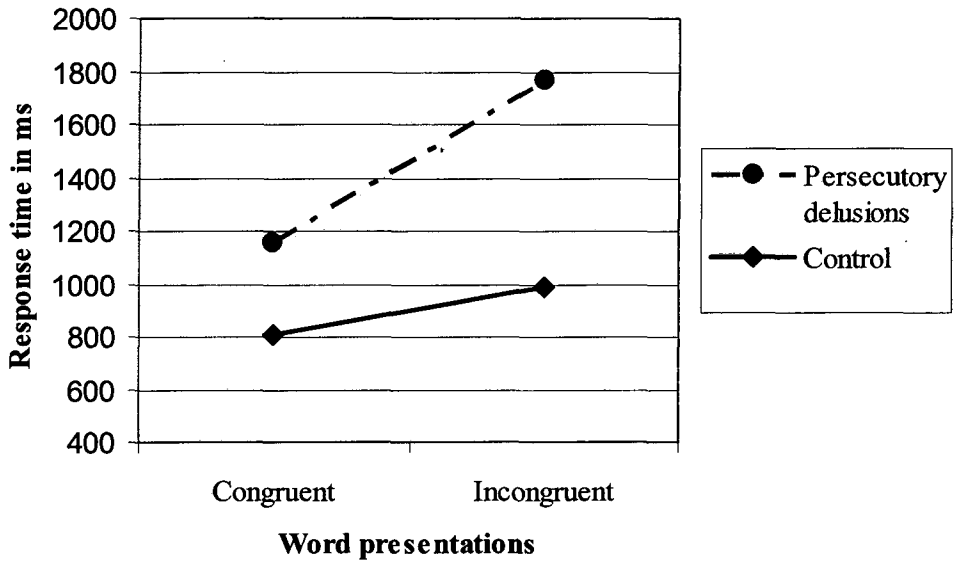
Table 4: Mean scores (ms), and standard deviations of IAT response times and IAT effect based on the conventional algorithm

IAT measurement	Group	Mean (*SD*)	
		Self-Esteem IAT	**Flower-Insect IAT**
Congruent Block Latencies (ms)	PD	1156.96 (424.14)	1073.00 (366.21)
	C	807.00 (205.07)	813.51 (200.02)
Incongruent Block Latencies (ms)	PD	1766.42 (964.94)	1341.58 (510.93)
	C	988.58 (218.65)	925.76 (168.10)
IAT Effect (Conventional Algorithm)	PD	0.34 (0.21)	0.17 (0.21)
	C	0.20 (0.13)	0.14 (0.17)

PD = Persecutory Delusion Group; C = Control Group; *SD*=Standard Deviation

A mixed 2 (Block - congruent/incongruent) x2 (Group) ANOVA with response times as the dependent variable was employed. There was a significant main effect of group ($F(1,34) = 22.98$, $p<0.01$). The group with persecutory delusions responded more slowly than the control group. The main effect of block was not significant (*F with MHV as covariate* $(1,33) = 0.11$, $p=0.75$). The interaction was significant ($F(1,34) = 6.22$, $p<0.05$) but with age included just failed to reach significance (*F with age as covariate* $(1,33) = 3.62$, $p=0.07$). Figure 2 illustrates the interaction.

Figure 2: Response times (ms) for the congruent and incongruent word presentations



As the interaction was so close to significance, we calculated the difference in response latencies between the incongruent and congruent blocks for each group. When these results were compared the persecutory delusion group had a significantly larger discrepancy in response speed between the incongruent and congruent blocks, compared with the control group ($t(24.06) = 2.37$, $p<0.05$). The persecutory delusion group were slower responding on both the congruent and incongruent tasks; however, they were particularly slowed in the incongruent task when compared with the controls.

3.3.1 Neutral IAT

The flower-insect IAT was included to check for differences in responding between the two groups on a neutral IAT. Both groups demonstrated stronger implicit associations between words presented in the congruent blocks than words

presented in the incongruent blocks, demonstrated by positive IAT-D effect scores. Investigation of the IAT-D effect revealed no significant difference in responding between the groups (*F with MHV as covariate* (1,33) = 1.50, $p<0.05$). The persecutory delusion group responded similarly to the controls.

3.4 Explicit Self-Esteem

The RSE was used as a measure of global explicit self-esteem. Higher scores on the RSE indicate higher levels of self-esteem. The persecutory delusion group scored significantly lower (M=16.31, SD=5.97) than the control group (M=23.05, SD=4.38) ($t(34) = -3.90$, $p<0.01$), suggesting lower explicit self-esteem.

3.5 Positive and Negative Self and Other

The groups were compared on the measures of Positive-Self, Negative-Self, Positive-Other and Negative-Other subscales of the BCSS. Table 4 shows the means and standard deviations. On the positive subscales higher scores indicate more positive views of self/others. On the negative subscales higher scores indicate more negative views of self/others.

Table 4: Mean scores and standard deviations on the BCSS

	Persecutory Delusion Group		**Control Group**	
Variable	Mean	*SD*	Mean	*SD*
Positive-Self	9.56	5.75	14.05	5.21
Positive-Other	10.75	5.07	12.30	5.27
Negative-Self	6.19	5.00	0.85	1.66
Negative-Other	8.31	6.66	1.45	2.81

SD=Standard Deviation

There was no significant difference between the groups on the measure of positive-self (*F with age as covariate* (1,33) = 2.84, p>0.05) or positive-other ($F(1,34) = 0.80$, p>0.05). The persecutory delusion group scored significantly higher on the negative-self subscale ($F(1,34) = 20.16$, p<0.01) and the negative-other subscale ($F(1,34) = 17.43$, p<0.01) than the control group. This indicates that the persecutory delusion group held more negative views of themselves and of others than the control group.

3.6 The Effects of Social Anxiety, Anxiety, Depression and Stress

As social anxiety may influence responding on self-esteem measures, and levels of anxiety and depression are often high in people with persecutory delusions, the main analyses were undertaken with these variables as covariates.

3.6.1 Implicit Self-Esteem

Inclusion of the SIAS and DASS-21 scores as covariates made no difference to the result; the groups did not differ on the self-esteem IAT-D effect (lowest p=0.083). However, the inclusion of the SIAS as a covariate in the conventional algorithm analysis, removed the significant interaction between group and (congruent/incongruent) block ($F(1,33) = 2.37$, p=0.13). This suggests that the larger discrepancy in response times between the congruent and incongruent blocks for the group with persecutory delusions was partly accounted for by the measure of social anxiety.

3.6.2 *Explicit Self-Esteem*

When social anxiety (SIAS) was co-varied out the difference between the groups on explicit self-esteem was on the boundary of traditional significance levels ($F(1,33) = 4.13$, $p=0.05$). However, DASS-21 scores as a covariate eliminated the difference in explicit self-esteem scores between the groups ($F(1,33) = 0.22$, $p=0.65$). This suggests that the variation between the persecutory delusion and control group on explicit self-esteem may be partly accounted for by levels of social anxiety, depression and anxiety.

3.6.3 *Negative self and other*

Including DASS-21 scores as a covariate resulted in a non-significant difference between the groups on the measure of Negative Self ($F(1,33) = 1.50$, $p>0.05$). For the negative-other subscale, the inclusion of covariates resulted in no change in the significance of results ($p<0.05$). The increased negative-self view in the persecutory delusion group appears to be partly accounted for by greater negative emotional symptoms (DASS-21).

4. Discussion

Persecutory delusions are characterised by the belief that other people intend to cause harm or negative outcomes for the individual. The attribution self-representation cycle (ASRC) proposes that people with persecutory delusions have latent negative beliefs about the self and low implicit self-esteem. Through attributing blame to others for negative outcomes, individuals are able to retain a positive self-view in conscious awareness, and levels of explicit self-esteem equivalent to a healthy population. However, blaming others results in others being seen as malevolent and hostile. If the defence is effective, then these are the predicted processes and outcomes. However, the model also allows for times when the defence is less effective, for example when the self, rather than others, is blamed for negative outcomes, and predicts that at these time levels of explicit self-esteem may lower. Based on the ASRC, the predictions of this study were that people with persecutory delusions would have low implicit self-esteem, and higher levels of explicit self-esteem. We also predicted that people with persecutory delusions would have negative views of other people but have positive views of the self.

4.1 Interpretation of results

The IAT measures the strength of implicit associations between the category of self and evaluative words (positive and negative), relative to associations between the category of other and evaluative words. Greenwald and Farnham (2002) suggest that measuring the strength of implicit association between self and positive words (relative to other and negative words) reflects levels of implicit self-esteem. On the IAT, both the control and persecutory delusion group were quicker to respond for congruent word presentations than the incongruent word presentations. The results

suggest that *self* + *positive* and *other* + *negative* word pairings were more strongly associated implicitly, suggesting positive implicit self-esteem for both groups. According to Greenwald and Farnham's (2004) interpretation of IAT data, the results of this study suggest that people with persecutory delusions, have a positive implicit self-view similar to that of a healthy control group. In fact, there was a trend towards the group with persecutory delusions having more positive explicit self-esteem than the control group. This is contrary to the predictions of the ASRC. Overall, these results are not consistent with McKay et al. (2007) or Moritz et al.'s (2006) results, who both found lower levels of implicit self-esteem in people with persecutory delusions when compared with healthy controls. This does not support the prediction that people with persecutory delusions have lower implicit self-esteem than healthy controls.

The group with persecutory delusions had significantly lower levels of explicit self-esteem than the control group. However, this difference was largely attributable to levels of depression and anxiety. Increased levels of depression and anxiety are common in people with persecutory delusions (Applebaum, Robbins & Roth, 1999; Green et al., 2006; Smith et al., 2006), so it may be that co-morbid depression and anxiety in persecutory delusions are responsible for negative explicit self-esteem rather than persecutory delusions per se. The results of this study are consistent with McKay et al.'s (2007) study, where depression accounted for lower levels of explicit self-esteem found in the group with persecutory delusions, and is also consistent with other studies that have reported low explicit self-esteem in this clinical group (e.g. Bowins & Shugar, 1999; Freeman et al., 1998). These results do not support the prediction that explicit self-esteem is preserved, as stated by the ASRC.

Explicit self-esteem is one way to look at self-representations, but in this study we also looked at negative-self schemas. Consistent with the idea that low explicit self-esteem is linked to depression and anxiety; the increased negative self-schemas held by the persecutory delusion group were also accounted for by negative emotional symptoms, such as anxiety and depression. Again, this does not support the notion that people with persecutory delusions retain an explicit positive self-view. In terms of schemas regarding other people, participants in this study with persecutory delusions had more negative views of other people than the control group. This provides some indirect support for the proposal that attributing blame to others for negative outcomes, contributes to the perception of them as hostile and malevolent, as predicted by Bentall et al. (2001).

In summary, this study did not support the central predictions of the ASRC regarding self-esteem; that is, a discrepancy between low implicit and more positive explicit self-esteem. In terms of schemas, the only prediction that was supported was that other people would be seen as negative. Given the lack of support for this model, alternative ways of understanding persecutory delusions need to be considered. The threat anticipation cognitive model (TACM) (Freeman & Garety, 2004) may provide a better explanation of the results reported here.

The TACM views persecutory delusions as threat beliefs about others intending harm towards the individual. The threat belief arises as an explanation for anomalous experiences (e.g. perceptual abnormalities, heightened arousal, ambiguous social information or coincidences). The threat belief is shaped by negative schemas (e.g. viewing the self as vulnerable or unworthy, or others as hostile); emotions (e.g. anxiety and depression), which reflect negative schemas; interpersonal sensitivity (feeling inferior or vulnerable in comparison with others,

and high levels of self-consciousness); and cognitive biases (e.g. attention to threat related information and external-personal attribution bias). The delusion is maintained through safety behaviours that prevent disconfirmation of fears (Freeman, Garety & Kuipers, 2001); attentional biases, such as preferential processing of threat related material (Bentall & Kaney, 1989), and a self-focused cognitive style (Freeman, Garety & Phillips, 2000); and emotions, such as anxiety and depression, which add further support for the threat belief. Low explicit self-esteem is proposed to arise from negative schemas and emotions. The model does not predict any defensive function of the delusion.

The negative self-beliefs and negative-other beliefs found in this study equate with Freeman and Garety's (2004) proposal that individuals have negative schemas regarding the self and others, which make them vulnerable to anticipate threat. Depression and anxiety accounted for the low levels of explicit self-esteem in the group with persecutory delusions. This could be explained by the TACM, as emotions and schemas are proposed to make the individual vulnerable to low explicit self-esteem, and also shape the threat belief. In fact, lower explicit self-esteem and higher levels of depression are associated with delusional beliefs with greater self-diminishing content and stronger beliefs that harm is deserved (Green et al., 2006). Green et al., argue that the content of delusions reflect an individual's negative schemas, emotional state and self-esteem, rather than defending against low self-esteem. This is consistent with the findings in this study of low explicit self-esteem, and high levels of negative emotion in people with persecutory delusions. Clearly, causal relationships need to be investigated further, as this study does not show whether emotional states and negative schema cause low self-esteem. However, the overall pattern of increased negative emotion, low explicit self-esteem and negative

self and other schemas found in this study is more consistent with the TACM than the ASRC. As negative self-representations were high for the clinical group, these findings contradict the proposal that persecutory delusions are constructed to protect explicit positive self-representations.

Another finding consistent with the TACM is that the slower responding of the group with persecutory delusions on the incongruent IAT task (*self + negative* and *other + positive*) was partly accounted for by social anxiety. Freeman et al., (2005a; 2005b) have demonstrated an association between greater levels of persecutory ideation and increased social comparison, or interpersonal sensitivity. Interpersonal sensitivity is proposed to shape and maintain threat beliefs, as inferiority and low social self-confidence in relation to others is thought to make people feel more vulnerable to threat. It is possible that self view in relation to others is more important than self-esteem per se in understanding persecutory delusions.

Freeman & Garety's (2004) model offers some possible explanations for the findings of this study, particularly in relation to the role of depression, anxiety and social anxiety in persecutory delusions. However, it does not make any predictions about implicit or explicit self-esteem, and in particular it does not explain why implicit self-esteem would be at normal levels, but explicit self-esteem would be low. It is of interest that this pattern of implicit-explicit self-esteem has also been found in clinical groups with eating disorders (Cockerham, Stopa, Bell, & Gregg, 2008) and in groups with depression (De Raedt et al., 2006; Franck, De Raedt, & De Houwer, 2007). Franck et al. also found that higher levels of implicit self-esteem, predicted more depressive symptoms at a 6-month follow up. Cognitive theories of depression assume underlying negative self-schema (Beck, Rush, Shaw & Emery,

1979), which makes the finding of positive implicit self-esteem in depressed groups surprising.

Franck et al. (2007) discuss the possibility that in depression this pattern of self-esteem could be explained by positive implicit self-esteem reflecting the ideal-self (a latent positive representation of how an individual would want to be) and low explicit self-esteem reflecting the actual-self (a negative representation of how an individual consciously perceives himself/herself to be). Discrepancies between ideal and actual self-representations are associated with negative emotion (Scott & O'Hara, 1993). This is intriguing in relation to the ASRC, as Bentall et al. (2001) propose that persecutory delusions defend against low self-esteem reaching conscious awareness specifically in relation to discrepancies between ideal and actual self views (Higgins, 1987). Through attributing blame for negative outcomes to others, discrepancies between the ideal and actual self are proposed to be minimised, thus preserving explicit self-esteem. If Franck et al.'s hypothesis is correct, the discrepancy between positive implicit self-esteem and negative explicit self-esteem for people with persecutory delusions in this study, may actually reflect a discrepancy between the ideal-self view and actual-self view. This does not support the contention that persecutory delusions minimise ideal-actual self discrepancies, as proposed by the ASRC. However, it does demonstrate that discrepancies between high implicit and low explicit self-esteem are related to greater vulnerability to experience negative emotions, which may be due to discrepancies between ideal and actual self-representations.

This is one possible explanation for the differences found between implicit and explicit self-esteem in this study. Clearly, further research will be required to investigate whether the self-esteem findings in this study are robust, and if so why

this particular pattern of implicit and explicit self-esteem should emerge. A discrepancy between high implicit and low explicit self-esteem associated with negative emotion is consistent with the TACM, which predicts that negative emotion is one factor that will shape and maintain persecutory delusions.

4.2 Use of the Implicit Association Test

The self-esteem IAT appears to be the best measure of implicit self-esteem currently available (Bosson et al. 2000). However, it is not without problems, and there may be some particular issues regarding its use with people with persecutory delusions. One issue is that the IAT measures self-esteem is by comparing self and other categories (Karpinski, 2004). In persecutory delusions this might create a particular difficulty, given that the nature of the delusion is the belief that others intend harm. It is not clear whether finding a positive IAT-D effect is due to the congruent block pairings of *self* + *positive* being strongly associated (implying positive implicit self-esteem), or *other* + *negative* being strongly associated, or both. Similarly with the incongruent pairings (*self* + *negative/other* + *positive*) it is not clear whether the self or other pairing is more important. As others are hypothesised to be seen as hostile and deliberately intending harm, a positive IAT-D effect may be a reflection of implicit views about others rather than about the self. This might explain the trend towards higher levels of implicit self-esteem in the persecutory delusion group. Pinter and Greenwald (2005) argue in relation to non-clinical controls that the category of non-specific other is near neutral in valence, and emphasise that the IAT is a measure of self associations relative to other associations. However, given the importance of the role of others in persecutory delusions this is an important consideration.

It is of note that the group with persecutory delusions did not differ from the control group in their positive-other view on the BCSS. This suggests that on the incongruent task, when responses were slowed for the persecutory delusion group, that the pairing of *self* + *negative* may have been more important than the *other* + *positive* pairing. However, we can not be certain whether self or other pairings are more important in influencing the IAT-D effect. Further research could manipulate the *other* category to investigate the effect this has, for example using a negative, neutral and positive *other*. Would a negative other result in an increased IAT-D effect for people with persecutory delusions? The category of other in IAT tasks can be flexible depending on the research question, for example, "best friend" was used by Pinter and Greenwald (2005) as the other category.

This is the first study using a self-esteem IAT that has found no difference in levels of implicit self-esteem in people with persecutory delusions compared with a control group. One possible reason for the differences in findings could be due to differences in the IAT tasks used rather than implicit self-esteem. Mckay et al. (2007) used positive and negative affective words in their self-esteem IAT (e.g. laugh, torture), whereas this study used evaluative words (e.g. worthy, useless). Moritz et al. (2006) did not report what type of positive and negative words were used in their study. However, Greenwald and Farnham (2000) compared the use of evaluative and affective words in self-esteem IATs, and found no difference in outcomes. So, although it is possible that the use of evaluative and affective words could explain the difference in findings between this study and the research conducted by McKay et al., the evidence from Greenwald and Farnham suggests that this is unlikely.

4.3 Limitations

People with current persecutory delusions may be particularly difficult to recruit to participate in research, due to their concerns about the intentions of other people. There may have been a selection bias in recruitment, resulting in the participants in the clinical group having persecutory delusions of lower severity than is typical of the client group. A number of patients that were approached by their clinicians declined to take part. If persecutory delusions were less severe in the clinical group in this study, then this might indicate that the defensive function (as proposed by Bentall et al., 2001) was less often activated, allowing low self-esteem to reach conscious awareness more of the time.

Furthermore, many of the people recruited reported that they had experienced persecutory delusions for a number of years (mean = 17.25 years). The chronicity of their difficulties may have been important in determining levels of explicit self-esteem. Green et al., (2006) found that lower levels of explicit self-esteem were associated with more self-diminishing belief content, so perhaps persistent persecutory delusions result in more self-diminishing beliefs. Persecutory delusions may initially defend against low self-esteem reaching conscious awareness, but after many years of feeling persecuted, explicit self-esteem would be likely to diminish. Future research should include measures of distress severity and length of illness in analyses to account for the influence of these variables. Studies of people in first episodes of persecutory delusions and comparison with people with more chronic and long term experiences of persecutory delusions would also help to resolve this question.

A further limitation of this study is the disparity between the persecutory delusion group and control group in terms of age, sex and verbal ability. Age and

verbal ability were used as covariates in order to account for these differences, but future research should attempt to appropriately match groups to ensure that any differences in levels of the dependent variables are more likely to be due to the presence or absence of persecutory delusions. A clinical control group would also be important in future research, in order to establish whether the patterns of self-esteem found were specific to people with persecutory delusions or whether they may apply to other clinical groups.

4.4 Summary and Conclusions

This study found no support for the proposal that implicit self-esteem is lower in people with persecutory delusions, and instead found evidence for positive implicit self-esteem comparable with that of a healthy control group. Explicit self-esteem was lower for the group with persecutory delusions, and negative-self beliefs were higher. Only the prediction that people with persecutory delusions would view others negatively was upheld. Overall, the central predictions of the attribution self-representation model were not supported.

This study alone has found positive implicit self-esteem in people with persecutory delusions comparable with healthy controls. However, this is consistent with studies reporting positive implicit self-esteem in groups with depression and eating disorders. The results reported here raise questions about what the IAT is actually measuring. Further research will be needed to replicate these findings, and to address the methodological concerns regarding the category of other in the self-esteem IAT, in order to ensure it is measuring self-esteem rather than "other-esteem". The suggestion that measures of implicit self-esteem tap latent positive representations of the ideal-self and explicit measures assess conscious negative

representations of the actual-self might help to explain the unexpected finding of positive implicit self-esteem in people with persecutory delusions.

The results of this study suggest that the attribution self-representation model does not provide a comprehensive account of persecutory delusions. Therefore, in order to provide effective clinical interventions, further research will be required to investigate other cognitive models, for example the threat anticipation cognitive model.

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Appendix 1: School of Psychology ethics approval

From: Smith K.M.
Sent: 10 May 2007 11:44
To: mackinnon k.j. (kjm205)
Subject: Ethics Application

Dear Katharine

Re: Persecutory Delusions and the Self:
An investigation of explicit and implicit schema and persecutory delusions

The above titled application was approved by the School of Psychology Ethics Committee on 9 May 2007.

Should you require any further information, please do not hesitate in contacting me. Please quote reference CLIN/04/55.

Best wishes,

Kathryn

Miss Kathryn Smith
Secretary to the Ethics Committee
School of Psychology
University of Southampton
Highfield
Southampton SO17 1BJ
Tel: 023 8059 3995 Fax: 023 8059 2606
Email: kms@soton.ac.uk

Appendix 2: NHS Research Ethics Committee ethics approval

NHS

National Research Ethics Service

PW/STA/hph

26 November 2007

SOUTHAMPTON & SOUTH WEST HAMPSHIRE
RESEARCH ETHICS COMMITTEE (B)
1ST Floor, Regents Park Surgery
Park Street, Shirley
Southampton
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SO16 4RJ

Tel: 023 8036 2466
023 8036 3462
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Email: scsha.SWHRECB@nhs.net

Miss Katharine J MacKinnon
Trainee Clinical Psychologist
University of Southampton
Doctoral Programme in Clinical Psychology
34 Bassett Crescent East
SOUTHAMPTON
SO16 7BB

Dear Miss MacKinnon

Full title of study: **Paranoia and Self Concept: An investigation of implicit and explicit self-esteem, and self concept in people who experience persecutory delusions**

REC reference number: **07/H0504/94**

Thank you for your letter of 06 November 2007, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Vice-Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Ethical review of research sites

The Committee has designated this study as exempt from site-specific assessment (SSA. There is no requirement for [other] Local Research Ethics Committees to be informed or for site-specific assessment to be carried out at each site.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Application		20 June 2007
Investigator CV: Dr L Stopa		
Investigator CV: Miss K MacKinnon		20 June 2007
Protocol	2	06 November 2007
Covering Letter		20 June 2007

This Research Ethics Committee is an advisory committee to South Central Strategic Health Authority

The National Research Ethics Service (NRES) represents the NRES Directorate within the National Patient Safety Agency and Research Ethics Committees in England

Letter from Sponsor		15 June 2007
Peer Review	Response	
Peer Review	Initial	
Compensation Arrangements		14 June 2007
Interview Schedules/Topic Guides: Structured Clinical Interview DSM-IV		
Questionnaire: Brief Core Schema Scale		
Questionnaire: Evaluation Beliefs Scale		
Questionnaire: Persecutory Ideation		
Questionnaire: Rosenberg Self-Esteem Scale		
Questionnaire: National Adult Reading Test		
Questionnaire: Hospital Anxiety and Depression		
Questionnaire: Social Interaction Anxiety Scale		
Questionnaire: Cognitive Profile Interview		
Questionnaire: Southampton Mindfulness		
Questionnaire: Thought Control		
Questionnaire: Implicit Association Task		
Questionnaire: Mill Hill Vocabulary Scales		
Questionnaire: Depression Anxiety Stress Scale-21		
Advertisement Recruitment Poster for University Participants	2	
Advertisement: Psychobook Recruitment Advert for Students		
Participant Information Sheet: Non NHS/Student	3	06 November 2007
Participant Information Sheet: Student Participants	3	06 November 2007
Participant Information Sheet: NHS Participants	3	06 November 2007
Participant Consent Form: NHS Participants	3	06 November 2007
Participant Consent Form: Non NHS/Student	3	06 November 2007
Participant Consent Form: Student Participants	3	06 November 2007
Response to Request for Further Information		30 September 2007
Response to Request for Further Information		06 November 2007
Ethical Approval from the School of Psychology		10 May 2007
E-mail from Funder		20 March 2007
Debrief from for non-NHS Participants	1	20 June 2007
Debrief Form for NHS Participants	1	20 June 2007
References		

R&D approval

All researchers and research collaborators who will be participating in the research at NHS sites should apply for R&D approval from the relevant care organisation, if they have not yet done so. R&D approval is required, whether or not the study is exempt from SSA. You should advise researchers and local collaborators accordingly.

Guidance on applying for R&D approval is available from http://www.rdforum.nhs.uk/rdform.htm.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Now that you have completed the application process please visit the National Research Ethics Website > After Review

Here you will find links to the following

a) Providing feedback. You are invited to give your view of the service that you have received from the National Research Ethics Service on the application procedure. If you wish to make your views known please use the feedback form available on the website.
b) Progress Reports. Please refer to the attached Standard conditions of approval by Research Ethics Committees.
c) Safety Reports. Please refer to the attached Standard conditions of approval by Research Ethics Committees.
d) Amendments. Please refer to the attached Standard conditions of approval by Research Ethics Committees.
e) End of Study/Project. Please refer to the attached Standard conditions of approval by Research Ethics Committees.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email referencegroup@nationalres.org.uk .

07/H0504/94	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project

Yours sincerely

Mr. Peter Wilson
Vice-Chair

Email: scsha.SWHRECB@nhs.net

Enclosures: *Standard approval conditions*

Copy to: Dr Martina Prude
University of Southampton

This Research Ethics Committee is an advisory committee to South Central Strategic Health Authority

The National Research Ethics Service (NRES) represents the NRES Directorate within the National Patient Safety Agency and Research Ethics Committees in England

Appendix 3: Recruitment advert for control group

Attitudes and reactions in people with and without paranoia

I am looking for people that work at the University to take part in a study looking at attitudes and reactions in people with and without paranoia. Specifically I am looking for people who have never experienced clinical levels of paranoia (a strong belief that others may try to harm you in some way, although there is little reason to believe this is true). If you have not experienced these types of beliefs and would like to participate in this study please contact me using the details below.

Participation would involve meeting with the researcher for 35 to 50 minutes at the University. During that time you would complete a short (yes/no) interview, complete a simple computer-based task and answer some written questionnaires. We will pay you £10 for your time.

If you are interested you can contact me (Katharine MacKinnon) at kjm205@soton.ac.uk or on *telephone number* for more information.

*Personal information will not be released to or viewed by anyone other than researchers involved in this project. Your participation would be voluntary and you could withdraw your participation at any time. Study end date: March 2008.

Appendix 4: Information sheet for control group

School of Psychology

Doctoral Programme in Clinical Psychology

University of Southampton
Highfield
Southampton
SO17 1BJ United Kingdom

Tel +44 (0)23 8059 5321
Fax +44 (0)23 8059 2588

Study Number: 07/H0504/94

Information about the research:

Attitudes and reactions in people with and without paranoia

We would like to invite you to take part in a research study. Before you decide you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully.

Part 1: Tells you the purpose of the research and what will happen to you if you take part.

Part 2: Provides more detailed information about the conduct of this study.

Part 3: Provides more information about how you can ask questions and take part if you choose to.

If you have any questions about the research please talk to us now or contact us later. Take time to decide whether or not you wish to take part.

Part 1

1.1 What is the research about?

This research is looking at attitudes and reactions in people who have experienced some difficulties with their mental health including paranoia. We hope that the findings from this research will help to improve our understanding of why people develop feelings of paranoia.

The research is being conducted by a Trainee Clinical Psychologist at the University of Southampton as part of a Doctoral Degree. It is being carried out under the supervision of two Consultant Clinical Psychologists.

1.2 Why have I been invited?

We are looking for 25 people who have never had clinical levels of paranoia to take part in this study. You will be part of the control group. The results from the control group will be compared with the results from a group of people who have experienced paranoia to see if there are any differences in their attitudes and reactions.

1.3 Do I have to take part?

It is up to you to decide. We will describe the study in this information sheet and will give you a copy to keep. You will also have the opportunity to ask any questions you may have. If you choose to take part we will ask you to sign a consent form. A copy of the consent form will be given to you. You will be free to withdraw at any time without giving a reason.

1.4 What will taking part involve?

If you choose to take part you will be asked to meet with the researcher on one occasion at the University of Southampton for approximately 35-50 mins. We will be meeting participants between November 2007 and March 2008 and will arrange a time and date that is convenient to you.

As a participant you will be asked to:

- Complete a short interview about your current mental health; a series of yes/no questions. (10-15 minutes).
- You will complete a simple computer-based task where you will read words on a screen and sort them in to categories (20-25 minutes). No computer skills are needed for this task, you will simply be asked to press a left or right key for each word that is presented.
- You will complete 8 short written questionnaires about your emotions and thoughts (20-25 minutes). For each of the questionnaires you will indicate your response by ticking or circling your choice from several possible options.

1.5 Are there benefits of taking part?

We cannot promise that the results will help you, but the information we get from this study may help us to better understand why people develop paranoia. In the long term this may help us to understand how best to help people experiencing paranoia.

1.6 Are there disadvantages of taking part?

In similar studies looking at paranoia there have been no reported adverse effects for the participants. However, if a participant became distressed or concerned as a result of the study support would be provided. Details of this support are provided in the section 2.1 'What if there is a problem?'

1.7 Reimbursement of expenses

A payment of £10 will be made to reimburse you for your time and any expenses incurred as a result of taking part.

Part 2

2.1 What if there is a problem?

Support for Participants:

- If you experience distress while taking part in the study we will stop the session and give you the opportunity to continue at a later date if you wish to. You will be free to withdraw at any time without giving a reason.

Complaints or Concerns:

If you have any concern about any aspect of this study you should ask to speak to the researchers who will do their best to answer your questions. The Chief Investigator (Katharine MacKinnon) can be contacted at Doctoral Programme in Clinical Psychology, University of Southampton, Highfield, Southampton, SO17 1BJ. Phone (023) 8059 5321. E-mail kjm205@soton.ac.uk.

Or you can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: (023) 8059 3995.

Sponsorship and Insurance
This research is being carried out by a Trainee Clinical Psychologist at Southampton University as part of a Doctoral degree. The research is sponsored and covered for insurance purposes by Southampton University.

2.2 Confidentiality

Personal information will not be released to, or viewed by anyone, other than researchers involved in this project. Results of this study would not include your name or any other identifying characteristics.

2.3 What will happen to the results of the study?

Once the research is completed the results will be written up in dissertation form and submitted to the University of Southampton. In addition, the results may be submitted for publication in a scientific journal. The research findings in these reports will not identify any personal details of any participants. When the whole study is completed a summary of the overall findings will be sent to you should you wish to receive one.

2.4 Who has reviewed the study?

All research undertaken by Southampton University and the NHS is looked at by an independent group of people called a Research Ethics Committee to protect your safety, rights, well-being and dignity. This study has been reviewed and given favourable opinion by the Psychology Ethics Committee at The University of Southampton and by the NHS Southampton & South West Hampshire Research Ethics Committee (B).

Part 3

3.1 How to take part?

If you have read the information sheet and have more questions or feel you might like to take part please speak to me now or contact me later at kjm205@soton.ac.uk or on *telephone number*.

Alternatively you can fill out the form overleaf so that the researcher can contact you.

Signature **Date**

Name Katharine MacKinnon

Attitudes and reactions in people with and without paranoia

If you would like to take part please fill out your contact details below. I will contact you by letter/telephone/e-mail (please indicate your preference) to arrange an appointment, which will take place at the University of Southampton. You will have opportunity to ask any questions and then take part in the study if you choose.

- **Your contact details:**

Name:	**Telephone number/s** **Mobile:** **Home:**
Address:	**E-mail:**

Please return to the clinical psychology department

Katharine MacKinnon
Doctoral Programme in Clinical Psychology
34 Bassett Crescent East
SOUTHAMPTON
SO16 7PB

Appendix 5: Information sheet for NHS participants

School of Psychology
Doctoral Programme in Clinical Psychology

University of Southampton
Highfield
Southampton
SO17 1BJ United Kingdom

Tel +44 (0)23 8059 5321
Fax +44 (0)23 8059 2588

Study Number: 07/H0504/94

Information about the research:

Attitudes and reactions in people with and without paranoia

We would like to invite you to take part in a research study. Before you decide you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully.

Part 1: Tells you the purpose of the research and what will happen to you if you take part.

Part 2: Provides more detailed information about the conduct of this study.

Part 3: Provides more information about how you can ask questions and take part if you choose to.

If you have any questions about the research please talk to us now or contact us later. Take time to decide whether or not you wish to take part.

Part 1

1.1 What is the research about?

This research is looking at attitudes and reactions in people who have experienced some difficulties with their mental health including paranoia. We hope that the findings from this research will help to improve our understanding of why people develop feelings of paranoia.

The research is being conducted by a Trainee Clinical Psychologist at the University of Southampton as part of a Doctoral Degree. It is being carried out under the supervision of two Clinical Psychologists.

1.2 Why have I been invited?

We are looking for 25 people who are currently having problems with paranoia to take part in this study. A professional involved in your care will have identified you as someone who has experienced paranoia.

We will be comparing the results from a group of people who have experienced paranoia with a group of people who have not experienced paranoia to see if there are any differences in their attitudes and reactions.

1.3 Do I have to take part?

It is up to you to decide. We will describe the study in this information sheet and will give you a copy to keep. You will also have the opportunity to ask any questions you may have. If you choose to take part we will ask you to sign a consent form. A copy of the consent form will be given to you. You will be free to withdraw at any time without giving a reason. This would not affect the standard of care you receive.

1.5 What will taking part involve?

If you choose to take part you will be asked to meet with the researcher on one occasion for between 1 and 1½ hours. You will have the option of meeting the researcher either at the Department of Psychiatry or at the Community Mental Health Team base that you usually attend. We will be meeting participants between November 2007 and March 2008 and will arrange a time and date that is convenient to you.

As a participant you will be asked to:

- Complete a short interview about your current mental health, including some questions about any paranoia you may have experienced (20-30 minutes).
- You will complete a simple computer-based task where you will read words on a screen and sort them in to categories (20-25 minutes). No computer skills are needed for this task, you will simply be asked to press a left or right key for each word that is presented.
- You will complete 8 short written questionnaires about your emotions and thoughts (20-30 minutes). For each of the questionnaires you will indicate your response by ticking or circling your choice from several possible options.

1.5 Are there benefits of taking part?

We cannot promise that the results will help you, but the information we get from this study may help us to better understand why people develop paranoia. In the long term this may help us to understand how best to help people experiencing paranoia.

1.6 Are there disadvantages of taking part?

In similar studies looking at paranoia there have been no reported adverse effects for the participants. However, if you became distressed or concerned as a result of the study support would be provided. Details of this support are provided in the section 2.1 'What if there is a problem?'

1.7 Reimbursement of expenses

A payment of £10 will be made to reimburse you for your time and any expenses incurred as a result of taking part (for example, travel to and from the study).

Study Number: 07/H0504/94

Part 2

2.1 What if there is a problem?

Support for Participants:

- If you experience distress while taking part in the study we will stop the session and give you the opportunity to continue at a later date if you wish to. You will be free to withdraw at any time without giving a reason.
- The day following your participation either the researcher or your care co-ordinator will contact you to check on your well-being.
- If you experience distress as a result of the study (after taking part) we will liaise with your care co-ordinator to work out the best way to support you.

Complaints or Concerns:

If you have any concern about any aspect of this study you should ask to speak to the researchers who will do their best to answer your questions. The Chief Investigator (Katharine MacKinnon) can be contacted at Doctoral Programme in Clinical Psychology, University of Southampton, Highfield, Southampton, SO17 1BJ. Phone (023) 8059 5321. E-mail kjm205@soton.ac.uk.

Or you can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: (023) 8059 3995.

Sponsorship and Insurance
This research is being carried out by a Trainee Clinical Psychologist at Southampton University as part of a Doctoral degree. The research is sponsored and covered for insurance purposes by Southampton University.

2.2 Confidentiality

Personal information will not be released to, or viewed by anyone, other than researchers involved in this project. Results of this study would not include your name or any other identifying characteristics. We will let your care co-ordinator (or relevant healthcare professional) and GP know if you have chosen to take part in the study, but will not pass any details of your responses during the research.

We have a duty of care to ensure your safety and well-being in relation to this research. If during the course of (or as a result of) your participation you become distressed and we have significant concerns about your safety or well-being, we will need to contact your care co-ordinator. This will be to inform them of your distress so that the most appropriate support can be provided.

Study Number: 07/H0504/94

2.4 What will happen to the results of the study?

Once the research is completed the results will be written up in dissertation form and submitted to the University of Southampton. In addition, the results may be submitted for publication in a scientific journal. The research findings in these reports will not identify any personal details of any participants. When the whole study is completed a summary of the overall findings will be sent to you should you wish to receive one.

2.4 Who has reviewed the study?

All research undertaken by Southampton University and the NHS is looked at by an independent group of people called a Research Ethics Committee to protect your safety, rights, well-being and dignity. This study has been reviewed and given favourable opinion by the Psychology Ethics Committee at The University of Southampton and by the NHS Southampton & South West Hampshire Research Ethics Committee (B).

Part 3

3.1 How to take part?

If you have read the information sheet and have more questions or feel you might like to take part please speak to me now or contact me later at kjm205@soton.ac.uk or on *telephone number*.

Alternatively you can fill out the form overleaf and pass it to your healthcare professional so that the researcher can contact you.

Signature **Date** 06/11/07

Name Katharine MacKinnon

Study Number: 07/H0504/94

Attitudes and reactions in people with and without paranoia

If you would like to take part please fill out your contact details below. I will contact you by letter/telephone/e-mail (please indicate your preference) to arrange an appointment, which will take place either at the Department of Psychiatry or the Community Team base that you usually attend. You will have opportunity to ask any questions and then take part in the study if you choose.

- **Your contact details:**

Name:	**Telephone number/s** **Mobile:** **Home:**
Address:	**E-mail:**

Please indicate how you would prefer to be contacted.

Appendix 6: Consent form for control participants

Attitudes and reactions in people with and without paranoia

Consent Form for Research Participants

Statement of Consent **please initial box**

1. I confirm that I have read and understand the information sheet dated..... (version.....) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

2. I understand that I may withdraw my consent and discontinue participation at any time without penalty or loss of benefit to myself. ☐

3. I understand that data collected as part of this research project will be treated confidentially, and that published results of this research project will maintain my confidentiality. ☐

4. I understand that if I have questions about my rights as a participant in this research, or if I feel that I have been placed at risk, I can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: (023) 8059 3995. ☐

5. A copy of this consent letter will be offered to me. ☐

6. I give consent to participate in the above study: ☐

Signature Date
Name [participants name]

Signature Date
Name [Name of person taking consent]

Appendix 7: Consent form for NHS participants

Attitudes and reactions in people with and without paranoia

Consent Form for Research Participants

Statement of Consent **please initial box**

1. I confirm that I have read and understand the information sheet dated..... (version.....) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

2. I understand that I may withdraw my consent and discontinue participation at any time without penalty or loss of benefit to myself. If I choose not to participate I understand there will be no consequences to my treatment as an NHS patient. ☐

3. I agree to my GP being informed of my participation in this study. ☐

4. I understand that data collected as part of this research project will be treated confidentially, and that published results of this research project will maintain my confidentiality. ☐

5. I understand that if I have questions about my rights as a participant in this research, or if I feel that I have been placed at risk, I can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: (023) 8059 3995. ☐

6. A copy of this consent letter will be offered to me. ☐

7. I give consent to participate in the above study: ☐

Signature Date
Name [participants name]

Signature Date
Name [Name of person taking consent]

Appendix 8: Debrief for the Control Participants

School of Psychology

Doctoral Programme in Clinical Psychology

University of Southampton
Highfield
Southampton
SO17 1BJ United Kingdom

Tel +44 (0)23 8059 5321
Fax +44 (0)23 8059 2588

Study Number: 07/H0504/94

Study Title: Attitudes and Reactions in people with and without paranoia

Debriefing Statement

The aim of this research was to look at levels of self-esteem in people who believe that other people intend to harm them (persecutory delusions). This will be compared with levels of self-esteem in people who do not experience persecutory delusions. There are theoretical ideas and some research evidence to suggest that negative ideas about the self (e.g. low self-esteem) might be associated with persecutory delusions. In this study we are looking at two types of self-esteem (conscious and unconscious) in order to investigate whether people with persecutory delusions differ from people without persecutory delusions in this respect. The results of this study may help us to develop a clearer understanding of why some people experience these beliefs about harm and how best to help them.

Once again, results of this study will not include your name or any other identifying characteristics. The research did not use deception. You may have a copy of this summary if you wish. In addition, if you would like a summary of the research findings once the project is completed I will arrange to have one sent to you.

Should this study have raised any concerns regarding your own mental health it is advisable to contact your own GP or mental health professional to discuss this.

If you have any further questions about the study please contact me (Katharine MacKinnon) at kjm205@soton.ac.uk or *telephone number*.

Thank you for your participation in this research.

Signature _____ Date _____

Name Katharine MacKinnon

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ.
Phone: (023) 8059 3995.

Appendix 9: Debrief for the NHS participants

School of Psychology

Doctoral Programme in Clinical Psychology
University of Southampton
Highfield
Southampton
SO17 1BJ United Kingdom
Tel +44 (0)23 8059 5321
Fax +44 (0)23 8059 2588

Study Number: 07/H0504/94

Study Title: Attitudes and Reactions in people with and without paranoia

Debriefing Statement

The aim of this research was to look at levels of self-esteem in people who believe that other people intend to harm them. This will be compared with levels of self-esteem in people who do not experience these beliefs about harm. We are looking to see whether there are any differences in levels of self-esteem between these two groups. The results of this study may help us to develop a clearer understanding of why some people experience these beliefs about harm and how best to help them.

Once again, results of this study will not include your name or any other identifying characteristics. The research did not use deception. You may have a copy of this summary if you wish. In addition, if you would like a summary of the research findings once the project is completed I will arrange to have one sent to you.

Should this study have raised any concerns regarding your own mental health it is advisable to contact your own GP or mental health professional to discuss this.

If you have any further questions about the study please contact me (Katharine MacKinnon) at kjm205@soton.ac.uk or *telephone number*.

Thank you for your participation in this research.

Signature _____ Date _____

Name Katharine MacKinnon

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ.
Phone: (023) 8059 3995.

Appendix 10: Clinical Psychology Review notes for contributors

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CLINICAL PSYCHOLOGY REVIEW

Guide for Authors

SUBMISSION REQUIREMENTS: Authors should submit their articles electronically via the Elsevier Editorial System (EES) page of this journal (http://ees.elsevier.com/cpr). The system automatically converts source files to a single Adobe Acrobat PDF version of the article, which is used in the peer-review process. Please note that even though manuscript source files are converted to PDF at submission for the review process, these source files are needed for further processing after acceptance. All correspondence, including notification of the Editor's decision and requests for revision, takes place by e-mail and via the Author's homepage, removing the need for a hard-copy paper trail. Questions about the appropriateness of a manuscript should be directed (prior to submission) to the Editorial Office, details at URL above. Papers should not exceed 50 pages (including references).

Submission of an article implies that the work described has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, without the written consent of the Publisher.

FORMAT: We accept most wordprocessing formats, but Word, WordPerfect or LaTeX are preferred. Always keep a backup copy of the electronic file for reference and safety. Save your files using the default extension of the program used.

Please provide the following data on the title page (in the order given).

Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.

Author names and affiliations. Where the family name may be ambiguous (e.g., a double name), please indicate this clearly. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name, and, if available, the e-mail address of each author.

Corresponding author. Clearly indicate who is willing to handle correspondence at all stages of refereeing and publication, also post-publication. **Ensure that telephone and fax numbers (with**

country and area code) are provided in addition to the e-mail address and the complete postal address.

Present/permanent address. If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

Abstract. A concise and factual abstract is required (not exceeding 200 words). This should be typed on a separate page following the title page. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separate from the article, so it must be able to stand alone. References should therefore be avoided, but if essential, they must be cited in full, without reference to the reference list.

STYLE AND REFERENCES: Manuscripts should be carefully prepared using the Publication Manual of the American Psychological Association, 5th ed., 1994, for style. The reference section must be double spaced, and all works cited must be listed. Please note that journal names are not to be abbreviated.

Reference Style for Journals: Cook, J. M., Orvaschel, H., Simco, E., Hersen, M., and Joiner, Jr., T. E. (2004). A test of the tripartite model of depression and anxiety in older adult psychiatric outpatients, *Psychology and Aging*, 19, 444-45.

For Books: Hersen, M. (Ed.). (2005). Comprehensive handbook of behavioral assessment (2 Volumes). New York: Academic Press (Elsevier Scientific).

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Appendix 11: Cognitive Neuropsychiatry notes for contributors

Journals Listings
Alphabetical Listing
Journals by Subject
New Journals
Author Resources
Authors' Newsletter
Author Rights
Copyright Transfer FAQs
Instructions for Authors
iOpenAccess
General Resources
Advertising
Customer Services
Email Contents Alerting
eUpdates
iFirst
Online Information
Online Sample Copies
Permissions
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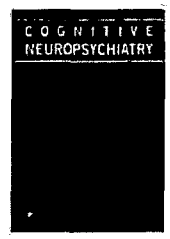

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- Cognitive Neuropsychiatry

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Your covering email/letter must include full contact details (including email), the title of the journal to which you are submitting, and the title of your article.

All manuscripts must be accompanied by a statement confirming that it has not been previously published elsewhere and that it has not been submitted simultaneously for publication elsewhere.

All manuscripts should be submitted in American Psychological Association (APA) format following the latest edition of Publication Manual of the APA (currently 5th edition).

Authors may request blind refereeing. In this case, it is the responsibility of the author to prepare his or her manuscript such that after detachment of the title page no clues remain as to authorial identities.

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Journal Production Editor:
authorqueries@tandf.co.uk

FORMAT

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typescripts should conform to the specifications given in the ***Publication Manual of the American Psychological Association*** (5th ed.). Typescripts should be **double spaced** on **one side** only of A4 paper, with adequate margins, and numbered throughout. The title page of an article should contain only:

(1) the title of the paper, the name(s) and address (es) of the author(s);
(2) a short title not exceeding 40 letters and spaces, which will be used for page headlines;
(3) name and address of the author to whom correspondence and proofs should be sent;
(4) your telephone, fax and e-mail numbers, as this helps speed of processing considerably;
(5) up to six keywords.

Structured Abstracts. Authors submitting papers should note that the journal uses Structured Abstracts. There is good evidence that Structured Abstracts are clearer for readers and facilitate better appropriate indexing and citation of papers.

The Structured Abstract should be between 50-200 words and their essential features are given below. Note in particular that any clinical implications should be clearly stated.

Introduction: Describe the background to the study, hypotheses, aims, objectives, research questions, etc.
Methods: Include outline of the methodology and design of experiments; materials employed and subject/participant numbers with basic relevant demographic information; the nature of the analyses performed.
Results: Outline the important and relevant results of the analyses.
Conclusions: State the basic conclusions and implications of the study. State, clearly and usefully, if there are implications for management, treatment or service delivery.

Headings. Indicate headings and subheadings for different sections of the paper clearly. Do not number headings.

Acknowledgements. These should be as brief as

possible and typed on a separate sheet at the beginning of the text.

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