Thesis:

Trauma and construction of self and others following psychotic experiences

25,757 WORDS excluding index, references and appendices

1. ABSTRACT

The aim of this study was to examine how trauma may affect the development of psychosis. Previous research in the field of Personal Construct Theory has found that people who have a diagnosis of schizophrenia have a poorly elaborated self-concept. This study investigated whether there may be a relationship between trauma and self-elaboration in people who have experienced psychosis. It was hypothesised that more severe trauma in childhood would lead to lower self-elaboration, greater conflict in the self concept and lower elaboration of self when experiencing a traumatic life event in childhood. It was also hypothesised that people would see themselves as less like other people if they had experienced more severe trauma.

A sample of 21 people who had experienced psychosis completed repertory grids. The grids included elements of self at different times in one's life, self in different life events and other people. When childhood sexual abuse was the main grouping variable, the high trauma group had lower self-elaboration, saw themselves as more different to other people and had greater conflict in their self-concept.

The findings of the study were discussed in relation to childhood abuse and its impact on self-construction. Limitations of the study were also discussed and related to future research on the relationships between self-concept, trauma and psychosis.

2. INTRODUCTION

The introduction will begin with defining trauma and psychosis and a review of the relationship between them. Personal Construct Theory (PCT) and its contribution to the understanding of psychosis will then be summarised. The summary will include ideas on the self in psychosis and how other people are construed by people who have psychosis. Following a brief review of PCT research and theory in trauma, the background to the hypotheses to be tested will be discussed.

2.1 The relationship between trauma and psychosis

2.1.1 Trauma

In order to discuss the relationship between psychosis and trauma it is necessary to define the two concepts. The Oxford English Dictionary (OED) defines trauma in relation to psychiatry as 'A psychic injury, especially one caused by emotional shock, the memory of which is repressed and remains unhealed' (OED, 1989). As noted by Read and Ross (2003) life events that could lead to trauma include physical and sexual abuse, neglect, family violence and chaos, military combat, death of primary caretakers, war and imprisonment. In relation to problems associated with trauma, the key diagnostic classification is Post Traumatic Stress Disorder (PTSD). The definition of a traumatic life event according to the Diagnostic and Statistical Manual IV (DSM IV) (APA, 1994) is as follows:

> '1. The person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others.

2. The person's response involved intense fear, helplessness, or horror' (p439)

The definition goes on to state that PTSD is diagnosed when re-experiencing of the traumatic event or events takes place and stimuli associated with the trauma are avoided. It also notes that PTSD results in clinically significant distress or impairment in social, occupational, or other important areas of functioning. For the purpose of this study, it is important to emphasise the fact that the PTSD diagnosis makes reference both to an individual event and to a number of events. For example, PTSD following childhood abuse may be referring to an isolated incident of abuse or may also refer to repeated abuse. PTSD will not be the main subject of investigation in this study, but it will be necessary to consider whether PTSD and psychosis are related to each other.

2.1.2 Psychosis

The OED defines psychosis as:

'Any mental illness or disorder that is accompanied by hallucinations, delusions or mental confusion and a loss of contact with external reality, whether attributable to an organic lesion or not' (OED, 1989)

This is echoed in the definition of psychosis used by Bentall (2003), where psychosis refers to 'severe psychiatric disorders in which the individual to some extent can be said to be out of touch with reality'. As Bentall notes, in practice this means disorders in which the individual suffers from delusions and / or hallucinations. According to the DSM IV (APA, 1994), a person who has experienced symptoms of psychosis will receive a diagnosis of schizophrenia if two or more of the following characteristic symptoms have been manifested for a significant portion of time during a one month period:

‘1. Delusions
2. Hallucinations
3. Disorganised speech (e.g. frequent derailment or incoherence)
4. Grossly disorganised or catatonic behaviour
5. Negative symptoms, i.e., affective flattening, alogia, or avolition’ (p291)

The schizophrenia diagnosis includes a range of social and occupational dysfunctions. There are also a number of diagnoses that have similar symptoms to schizophrenia. An extensive discussion of these is beyond the scope of this report. However, for the purpose of this study, the DSM IV definition of bipolar disorder will also be reported. Bipolar disorder is categorised in the mood disorders. It is the manic episode part of bipolar disorder that includes symptoms that may bear some resemblance to those found in the schizophrenia diagnosis. For example, the criteria include grandiosity and the experience that thoughts are racing. The definition for a manic episode also includes:

‘…marked impairment in occupational functioning or in usual social activities or relationships with others, or … psychotic features’ (p341)

Given the overlap between the schizophrenia and bipolar disorder diagnoses, a number of researchers have questioned the validity of diagnostic systems like DSM IV (e.g. Johnstone, 2000, Boyle, 2002, Bentall, 2003). Space constraints do not allow for discussion of the arguments for and against diagnosis. However, for the purpose of this study, the concept of psychosis as an experience where one was ‘out of touch with reality’ will be adopted. This means that the participants in this study may have a diagnosis such as schizophrenia or bipolar disorder, but they may also have no diagnosis.

2.1.3 The relationship between trauma and psychosis

In recent years research examining the relationship between trauma and psychosis has grown. A number of reviews provide evidence that trauma causes psychosis (e.g. Read, 1997; Goodman, Rosenberg, Mueser and Drake, 1997; Read and Ross, 2003). Other work on childhood sexual abuse and childhood physical abuse in particular has found these experiences to be strongly related to symptoms of psychosis (e.g. Read, 1997; Read, Agar, Argyle and Aderhold, 2003; Read, van Os, Morrison, and Ross 2005). A summary of research on trauma and psychosis can be found in the literature review in this volume by Sporle (2007). However, as noted by Morrison, Frame and Larkin (2003), there are three main ways that trauma and psychosis may be related:

1. Traumatic life events cause psychosis
2. Psychosis is a traumatic life event that causes PTSD
3. Psychosis and PTSD could both be part of a spectrum of responses to a traumatic event

Although trauma and psychosis may be related in three main ways, the main focus for this study will be on the role that traumatic life experiences may have in the development of psychosis. For example, Mueser et al. (1998) reported in their sample of 275 people with severe mental illness that 98% had experienced at least one traumatic life event and Neria, Bromet, Sievers, Lavelle, and Fochtmann (2002) found a trauma exposure rate of 68.5% in their sample of 426 patients on a first admission for psychosis. A review of evidence supporting the second and third relationships and of models of trauma and psychosis can be found in the literature review in this volume. The main model and theory that will influence this study is Personal Construct Theory (PCT) and this will be introduced in the next section.

2.2 Personal Construct Theory and psychosis

Kelly (1955) was the founder of PCT. His view on human motivation was summarised in the Fundamental Postulate to PCT which is as follows, 'A person's processes are psychologically channelized by the way in which he anticipates events' (Kelly, 1955). Kelly noted that the concept of validation follows on from the Fundamental Postulate. If a person commits himself to anticipating a particular event and it takes place, his anticipation is validated and his predictions are verified. If his predictions do not take place, his anticipation is invalidated.

2.2.1 Repertory grids

One of the main tools that Kelly developed to examine the way that an individual makes predictions about the world was the repertory grid. The repertory grid is like a map of an individual's system of constructs. Repertory grids consist of constructs, elements and ratings of the elements on the constructs. Fransella, Bell and Bannister (2004) note that constructs are bipolar in nature and 'a way in which two or more things are alike and thereby different from a third or more things'. In describing the bipolar nature of constructs, the authors note that when we make a statement about someone, e.g. John is *honest,* we are also saying that he is not *a crook* or whatever is the opposite of the construct for the person construing John. It is often the opposite pole of a personal construct that gives us a clear meaning of that construct. Repertory grids enable us to examine in more detail how an individual uses a construct, e.g. 'honest – a crook'. In order to do this, the concept of element as applied to PCT must be defined. Kelly (1955) defines an element as 'the things or events which are abstracted by a construct'. In repertory grid research, participants are asked to rate elements on constructs. The elements are chosen to fit the area under investigation.

2.2.2 The serial invalidation hypothesis and loose construing

Bannister (1960, 1962, 1963 and 1965) developed a theory that schizophrenic thought disorder could be explained by the process of serial invalidation. It was hypothesised to be the result of an individual consistently making predictions about the world, only to have these predictions invalidated. When a person's ways of making predictions about the world (his constructs), ceased to make useful predictions, they no longer enabled the person to make sense of the world. The result of serial invalidation would be that the constructs would become vague or 'loose', meaning that they would have a weak relationship with each other. The observable result of serial invalidation would be seen in a person's behaviour becoming random and purposeless. The individual's subjective experience would become fluid and undifferentiated. As an example, Bannister (1963) considered a person who has a construct of 'loving – hating'. Initially the person may predict another person to be loving, but finds they do not meet this prediction. At first they may attempt to construe the person using the opposite pole of 'loving', which is 'hating'. However, if they experience continuous invalidation of their predictions about the other person, they will repeatedly have to shuffle them to and fro across the poles of a construct. The eventual result, aimed at avoiding further invalidation, would be to loosen and weaken the relationship of the construct 'loving – hating' with other related constructs. By loosening and weakening relationships between constructs the person avoids the experience of further invalidation, at the cost of being unable to produce testable anticipations. Therefore, the predictions and anticipations about 'loving' become vague and multi-directional. As a consequence, related constructs, for example 'kind' and 'sincere', are less likely to be linked to 'loving'. Bannister's general findings from manipulating validation and invalidation under experimental conditions supported his hypothesis. Serial invalidation led to loosened construing whereas serial validation led to an increase in the strength of correlations between constructs. The relative tightness or looseness in repertory grid data was measured by the

intensity, or average correlation between the constructs. Lower correlations meant lower intensity or looser construing.

2.2.3 Testing of Bannister's hypotheses

Bannister's early work initially led to a number of studies that both supported and criticised his view. For a review of this work, see for example van den Bergh, de Boeck and Claeys (1985) or Winter (1992). A key paper by Radley (1974) noted that Bannister's initial serial invalidation hypothesis did not make it possible to differentiate between the loose thinking of schizophrenic thought disorder and the complex thinking of 'normal people'. Two completely opposite hypotheses could account for the loose construing effect found in schizophrenia. Loose construing could account for conceptual disorganisation but it could also reflect cognitive complexity. This would be found in a person who used their constructs in a number of different ways, resulting in the constructs having a weak relationship with each other. Radley was able to account for these two alternative explanations of loose construing. He noted that cognitively complex people are more able to integrate conflicting information about people than cognitively simple people. They did this by using superordinate or hierarchically higher constructs. For example, encountering someone who was perceived as both 'loving' and 'unkind' (if loving people are generally construed by the individual as kind) could result in a low strength of relationship between the constructs. According to Bannister's theory, this would be similar to the invalidation encountered by people with a diagnosis of thought-disordered schizophrenia. However, although in Radley's view a person with schizophrenia would have a loose relationship between the constructs, a 'normal person' would be able to link the constructs together by an overarching construct e.g. 'disciplinarian' to account for this difference. van den Bergh, de Boeck and Claeys (1981) found evidence to support Radley's (1974) hypothesis on the nature of personal constructs in people with a diagnosis of schizophrenia. They noted that by monitoring the

changes in individuals' construct systems, they could examine the overarching constructs that Radley had hypothesised. The overarching or 'linkage' constructs were hypothesised to operate by varying the intensity in one's construct system over time. Linkage constructs enabled an individual to make both independent and contradictory judgements. According to their hypothesis, when normal subjects were re-tested on their repertory grids they would be more able to vary their relationship between constructs. In contrast, thought disordered schizophrenics would be incapable of integrating conflicting information and the intensity would be similar on test-retest. When they compared a non-patient control group to thought-disordered schizophrenics they found evidence to support their operation of linkage constructs by varying intensity. This is because the non-patient group tended to increase the strength of their inter-construct relationships more than the thought-disordered schizophrenic group.

The importance of the hierarchical structure of construct systems and their role in invalidation was brought up to date in a theoretical paper by Lorenzini, Sassaroli and Rocchi (1989). They wrote that paranoid individuals would have a construct system with a well developed hierarchy. However, although the hierarchy was in place, each construct would only have one developed emergent pole with no implicit pole. This meant that when they experienced invalidation, moving to overarching constructs did not enable the individual to 'reabsorb' the experience of invalidation. The result of having no implicit poles and being unable to use the hierarchical organisation of constructs had the following consequences. Rather than being able to develop new predictions about the world, they would keep to their existing predictions, even when evidence might not support these predictions. In contrast to the rigid and hierarchically organised system of paranoid individuals, the system of schizophrenics was hypothesised to have little hierarchical organisation and little integration. This meant that instead of making accurate predictions, the predictions were vague and interchangeable. They felt that because people with schizophrenia had difficulty

in making accurate predictions, especially in their personal identity and attachment, they tended to be socially isolated and kept themselves distant from other people. Since this theory, ideas about the hierarchical organisation of construct systems have been developed further and will be outlined below in Section 2.3.

2.2.4 PCT and bipolar disorder

A search of the PsycINFO database in May 2007 was conducted using a number of search strings relevant to PCT and bipolar disorder in an attempt to identify relevant research in this area. For example, combining the strings ‘personal construct’ and ‘depression’ gave 52 results, though none of these papers was related to bipolar disorder. Eventually the strings ‘depression’ and ‘repertory grid’ revealed two published PCT studies on bipolar disorder. These were an initial study and follow-up and are now reported. Ashworth, Blackburn and McPherson (1982) felt that the repertory grids of people suffering from bipolar disorder would be more complex than non-psychiatric controls. This followed Kelly (1955), who postulated that the construct systems of people suffering from mania during bipolar disorder would have a frantic form, with patients jumping rapidly and illogically from element to element and construct to construct. Complexity would be reflected in the three highest principal components of a Principal Components Analysis (PCA) accounting for only a small proportion of the total variance in a repertory grid. In contrast, the first three components of a PCA of the repertory grids of depressed patients were hypothesised to account for a large proportion of the total variance, indicating a cognitively simple structure. To test for these complexity differences they compared 20 depressed, 10 bipolar disordered, 10 schizophrenic, 10 alcoholic and 10 physically ill patients. They did not find any significant differences in complexity between the groups. However the results for the depressed group and bipolar disorder group did tend to be in the directions hypothesised with bipolar patients having more complex grids and depressed

patients having more simple grids. Although the results were not significant, the authors could not be sure how being unwell had affected patients' construing. Therefore the measures were repeated on the depression and bipolar disorder groups when the patients had recovered from their mental health problems. This was approximately four months later and the follow-up results are reported by Ashworth, Blackburn and McPherson (1985). They found the differences had disappeared at follow-up and therefore concluded that their measures of complexity had perhaps reflected clinical status rather than more permanent aspects of the patients' thinking.

In addition to measures of complexity, Ashworth et al. (1982 and 1985) also examined self-other distance. They used the method suggested by Ryle and Breen (1972) who noted that the distance between two elements was a measure of how constructs have been assigned to the two elements. If two elements were rated as very similar, constructs had been applied to the two elements in a similar manner. This meant there was a short distance between them. If the average distances between the element 'self now' and elements that represented 'other people' (e.g. father, mother, etc) were calculated, short distances indicated that 'self now' was rated as similar to 'other people'. In contrast, large distances would indicate that 'self now' was rated as different to 'other people'. Essentially this was a measure of how integrated a person's construction of self was with their constructions of other people. They hypothesised that depressed people would be less likely to see themselves like other people, but bipolar disordered patients would be more likely to see themselves like other people. This was because in an attempt to create a self identity in a chaotic system they would be more likely to incorporate features from people they knew around them into their self-concept. The results indicated there was no significant difference between self-other distance in any of the groups, although the results for the depressed and bipolar disorder group did tend to be in the directions hypothesised. Although the directional difference in the bipolar group had disappeared at four month follow-

up, there did still seem to be a tendency for depressed patients to view themselves as less like other people. The work of Ashworth and colleagues raises the issue of perception of self and other people in psychosis. In the next section, research on self and other in psychosis will be explored further.

2.3 Self and other in psychosis

A central theme in this study is what happens to one's construction of self and other people in psychosis. General ideas about view of self and others in psychosis will be reviewed so that they can then be compared and contrasted with PCT research.

2.3.1 Self in psychosis

Given the 'loss of contact with reality' that is a feature of psychosis it seems intuitive that a loss of sense of self accompanies the phenomenon. But what is our 'sense of self'? Kircher and David (2003) noted that our sense of self has a fundamental, affective tone of mental, emotional and bodily unity, which is so basic to our experience that it is very difficult to grasp. They felt that conditions such as schizophrenia, where this basic tone of selfhood loses its natural givenness, created subsequent changes in the perception of oneself and the environment. Other writers have attempted to define the components to our sense of self. For example, Estroff (1989) felt that our self has at least two layers, a public person and private subject. She felt that psychosis was a result of no overlap between these layers. The resulting effect was an inability to comprehend oneself. These views are developed further by Lysaker and Lysaker (2002), who took a narrative view of the disruptions in self-experience associated with schizophrenia. They felt that problems in the functioning of internal dialogue may create the self-experience associated with schizophrenia. In their view our

internal dialogue enables us to create a coherent sense of self and disruption of this internal dialogue could explain the 'barren forms of self-organisation seen in schizophrenia'. Problems in self-development also feature in the work of Parnas (2003), who felt that in psychosis one's first person experiential perspective or one's status as a subject of experience and action is somehow distorted. For example, a patient may state 'it feels as if my body does not belong to me'. He noted that research supporting this position includes work by Parnas, Handest, Saebye and Jansson (2003), who found that self-disorders were highly specific for the schizophrenia spectrum conditions and also for bipolar disorder.

2.3.2 Other in psychosis

Although the concept of self has been elaborated in the previous section, many authors have noted that 'self' does not exist without 'other people' to provide the context or contrast for the self (e.g. Kelly, 1955, Ryle and Kerr, 2002). A cognitive developmental approach to psychosis has been developed by Harrop and Trower (2003), who have considered aspects of self-construction and the construction of other people in the development of psychosis. In their view, psychosis may be a result of a 'failure to construct a self'. They felt there are three major forms of self-construction failure. The first is the 'insufficient self', where social knowledge and theories about other people are insufficient for an individual to construct self-presentations. The second is the 'insecure self', where individuals can make self-presentations but find that other people reject them. The rejection of others results in a failure to achieve the status of having an objective self that is recognised by other people. The third form of self-construction failure is the 'alienated or engulfed self', where an individual has constructed self-presentations, but only receives affirmation from others when their self-presentations fit with the conditions of other people. Recent research has attempted to devise a measure of two of these types of self-construction failure. Dagnan, Trower and Gilbert (2002) have used a constructivist approach to

psychopathology where other people's reaction to the self is important to one's self construction. Their measure, called the Self and Other Scale (SOS), has been developed using social threat as the basis for the development of psychopathology. It is designed to measure the 'insecure self' and the 'engulfed self' noted above. These two dimensions or styles of self-construction are proposed to be related to different types of vulnerability to psychopathology. The focus when using this measure and of their research in general has been to consider how an individual's relationships with other people may lead to problems in self-construction. Evidence for the reliability and validity of the SOS has been reported by Dexter-Smith, Trower, Oyebode and Dagnan (2003). In summary, it seems that the concept of invalidation from a PCT perspective may be relevant to the three forms of self-construction failure reviewed above. This will be considered further in the next section.

2.4 Personal Construct Theory and understanding of self and other in psychosis

Ideas about self and other in psychosis were introduced above in section 2.2.4 and section 2.3. They will now be explored within the context of PCT.

2.4.1 Elaboration and contrast in identity

Rosenberg and Gara (1985) defined identity as an amalgam of features, including personal characteristics, feelings, values, intentions and images, experienced by an individual. The set of identities, their content and interrelationships was called an 'identity structure'. In their theory, the notion of elaboration of an identity referred to the full set of ways that an identity was experienced and enacted. Identities could vary in the degree to which they were enacted. One index of elaboration was the level of the identity in the hierarchy.

As an example, consider two identities, the first is ‘researcher’ and the second is ‘psychologist’. The researcher identity may have the features ‘precise, curious and speculative’. The psychologist identity may have the features ‘precise, curious, speculative, extroverted and sensitive’. Given these two identities, we could state that ‘researcher’ is a subset of ‘psychologist’. This is because all of the features of ‘researcher’ are also contained by ‘psychologist’, but ‘psychologist’ has a number of additional features. Comparing these two identities, ‘psychologist’ is the most elaborate, having more features connected to it. Therefore psychologist would be higher in the hierarchy than researcher. For further information about how roles might be organised, see Rosenberg and Gara (1985) or Rosenberg (1997).

Generally Rosenberg and Gara (1985) felt that disruption of the superordinate identities in a person’s structure would have a devastating effect. They would endanger these realities and threaten an individual’s sense of continuity. In the occurrence of threat to one identity, individuals were hypothesised to shift to another superordinate identity, if only for a transitional period of time. This would enable the person to maintain an elaborated sense of self, even if only on a temporary basis, whilst resolving the crisis. However, if a person only had one major identity, then disruption to this identity would be a strong threat to the person’s sense of reality.

2.4.2 The hierarchical model of self-organisation as applied to schizophrenia

If an individual is unable to use a hierarchically organised construct system they may be unable to cope with the experience of invalidation. The hierarchical model of constructs was applied to schizophrenia in a theoretical paper by Gara, Rosenberg and Cohen (1987). Rather than focusing on the general nature of construct systems as in Lorenzini et al. (1989), they emphasised constructs concerning identity. They put forward the hypothesis that a person was at risk for developing schizophrenia when they had a limited number or variety of identities.

Drawing on the work of Rosenberg and Gara (1985), they felt that when the enactment of identities an individual had developed was invalidated or negated by changes in life circumstances they were hypothesised to encounter stress. They felt that an individual was at risk for severe psychopathology when all of their prominent identities were profoundly challenged. Their research was facilitated by the development of new mathematical models to describe the hierarchical structures of repertory grids. They provided an alternative to using the correlation between constructs and the concept of intensity to define hierarchical structures. A mathematical model to analyse the hierarchical structure of repertory grid data is described in de Boeck and Rosenberg (1988) and Rosenberg, van Mechelen and de Boeck (1996). It is beyond the scope of this study to report in detail the mathematical nature of this model and its computer algorithm known as HICLAS (HIerarchical CLASses analysis). However, more information on the type of structural representations of grid data produced by HICLAS will be presented in Section 4.8.

Gara, Rosenberg and Mueller (1989) conducted an investigation into the perception of self and others in people who have a diagnosis of schizophrenia using HICLAS. Participants were asked to generate a list of 35 people know to them. They were then asked to generate between 5-10 descriptions of each person. The participants then rated each person, including themselves, as to whether a description applied to them or did not. They tested two hypotheses:

- That people with schizophrenia would have a less elaborated view of themselves than other people
- That people with schizophrenia would tend to view other people as being ‘more similar’, i.e. having a stereotypical view of other people

An experimental group of 8 schizophrenics was compared to a control group of 11 participants. They found that the schizophrenic group had a more poorly

elaborated view of self. This was represented in the HICLAS solution by the element ‘self’ being much lower in the hierarchical structure of schizophrenics’ grids than the controls’ grids. In addition, schizophrenics’ structures revealed that they were more likely to view other people as being similar to each other when compared to controls. This was because the goodness-of-fit data from HICLAS revealed that the schizophrenics’ grids had a higher goodness-of-fit, indicating that other people had been grouped tightly together, i.e. other people were undifferentiated from each other. They noted that although the results did not explain whether this perception was a cause or a consequence of schizophrenia, prospective research designs might help to differentiate between these possibilities. They also noted that at the time of their study it was not clear whether the findings of their study were unique to schizophrenia or whether they could also be applied to other types of psychopathology.

Further experimental evidence supporting the notion of an unelaborated self concept in schizophrenia was presented by Robey, Cohen and Gara (1989). They added to the work of Gara et al. (1989) by comparing three groups of patients: 10 recently hospitalised schizophrenic patients, 10 depressed patients and 10 non psychiatric subjects. They used HICLAS to construct self-perception structures and person perception structures for each participant. Each participant completed two grids. The first contained themselves in different contexts. The second grid contained different people instead of different selves. As reported above, self-perception structures were significantly less elaborated in the schizophrenic patients. Therefore, lower self-complexity was associated with schizophrenia but not major depression. It is notable that the schizophrenic group had been able to generate elaborate views of other people. Therefore, the results did not reflect a general elaboration deficit. A summary by Rosenberg and Gara (1992) added that focusing on the structure and functioning of personal identity may have merit in integrating biological and genetic studies of schizophrenia. They felt that somatic deficits could have social consequences that could in turn

affect identity development. Schizophrenia was likely to be a consequence of individuals being unable to develop elaborated identities.

2.4.3 Hierarchical model of self as applied to depression and Borderline Personality Disorder (BPD)

A larger study comparing depressed patients (n=31) to non-psychiatric controls (n=27) by Gara, Woolfolk, Cohen, Goldston, Allen and Novalany (1993) supported the finding by Robey et al. (1989) that lower self-complexity was not a feature of major depression. Depressed patients did have more unfavourable views of self, parents and significant others than controls. However, although depressed patients had significantly less positive self-complexity than controls, they had greater negative self-complexity. Two more recent studies provided further evidence for the validity of their methodology and added weight to the social cognitive complexity theories on depression (Gara, Woolfolk and Allen, 2002, Woolfolk, Gara, Allen and Beaver, 2004). Self-complexity could be distinguished from complexity of others, positive and negative affect and social desirability. This was because self-complexity predicted depressive symptomatology independently of the influence of the other factors. This was in line with previous research by Linville (1985) that greater cognitive self-complexity can act as a buffer from depression and other psychopathology when stress is encountered.

Generally, this brief review of self-complexity studies in depression provides further evidence that lower self-elaboration seems to be a feature of schizophrenia, rather than psychopathology in general. The methodology has been extended further to examine self-other perception in Borderline Personality Disorder (BPD) by de Bonis, de Boeck, Lida-Pulik and Feline (1995). They compared 19 schizophrenics, 17 people diagnosed as BPD and 18 controls who had no mental health problems. They used a modified repertory grid procedure similar to the Gara studies noted above. They examined the extent of overlap and

hence differentiation between self and others. They hypothesised that both schizophrenics and borderlines would describe themselves as poorly differentiated from others. The results indicated that the schizophrenic pattern was characterised by a contrast between self and others and by a poor differentiation among others. In other words, the poor elaboration of self in schizophrenia was supported. The notion that 'people look alike' for schizophrenics was also supported. The borderline pattern was characterised by a contrast between self and others, but the perception of others was differentiated. The control group were less likely to contrast themselves to other people and also had a well differentiated view of other people.

Unfortunately there appears to be an absence of published research investigating the construct systems of people who have bipolar disorder using HICLAS. Furthermore, there do not appear to have been any studies to date examining the construing of trauma in psychosis. It is hoped that the broad definition of psychosis used in this study will help address these two areas where further research is required. In contrast, there has been research conducted examining the construct systems of people who have PTSD. This research will be summarised in the next section.

2.5 Personal Construct Theory and trauma

Arguably any discussion of psychological theory and trauma should make reference to the influential cognitive model of PTSD by Clark and Ehlers (2000). In their model it is suggested that PTSD becomes persistent when trauma is processed in a way that leads to a sense of serious, current threat. PTSD is maintained by negative appraisals of the trauma and poor elaboration of the autobiographical memory of the event, together with strong perceptual priming for

the traumatic event. This section will now review PCT models and research in trauma, in particular PTSD and Childhood Sexual Abuse (CSA).

2.5.1 PCT models and research in PTSD

Elaboration of traumatic memories is also a key feature of PCT models of PTSD. In particular, theory on the hierarchical nature of construct systems lends itself well to consideration of elaboration in trauma. For example, Sewell, Cromwell, Farrell-Higgins, Palmer, Ohilde and Patterson (1996) have investigated the hierarchical structure of construct systems in Vietnam veterans. They proposed that negative or traumatic events would produce isolated construct classes that could not enter into associative relationships with the rest of an individual's construct system. In other words, traumatic events were outside the range of convenience of an individual's construct system, or were construed within systems that were unsuccessful in making predictions. In their study of 60 Vietnam veterans, 30 had PTSD and 30 had no PTSD or psychiatric problem. The main measure used was a repertory grid where the elements were 20 important life events. The life events were positive and negative and included the element 'most traumatic event in Vietnam'. They hypothesised that Vietnam veterans who had PTSD would have been unable to elaborate their traumatic Vietnam experiences when compared to those who did not have PTSD. They measured the concept of elaboration using HICLAS. The results indicated that veterans who suffered from PTSD had failed to integrate their conception of trauma into their total hierarchical structure of constructs when compared to veterans who did not have PTSD. This was illustrated in the finding that traumatic events were less elaborated and more isolated than other events. The role of elaboration in trauma was also examined by Sewell (1996) in his study of 82 people exposed to a mass murder. Using life events repertory grids he found evidence that people who had already experienced trauma would be less likely to

develop Posttraumatic Symptoms (PTS) because they would already have some constructs in place that they could use to elaborate the new trauma. He also found that people who still had PTS three months after the event were likely to be still suffering because they had been unable to elaborate the traumatic event. There was a significant difference in the mean elaboration index of people with PTS (1.5) when compared to the mean elaboration index of people with no PTS (3.2).

The two previous studies (Sewell et al., 1996 and Sewell, 1996) support the hypothesis that trauma related constructs will have a lower hierarchical position in relation to other non-trauma related constructs. However, one study by Winter and Gould (2000) did not support the hierarchical organisation hypothesis relating to traumatic events in PTSD. They examined a sample of 8 males and 5 females referred to a NHS clinical psychology department for treatment for PTSD. The measures patients completed included the Impact of Events Scale (Horowitz, Wilner and Alvarez, 1979) and the life events repertory grid taken from the Sewell studies noted above. The results did not show that traumatic events were less elaborated than other traumatic events. Although low sample size was a problem with this study, there was some indication that avoidance, as measured by the IES, was more likely if the overall elaboration of the construct system was low.

2.5.2 PCT and CSA

Given the prevalence of CSA and its relationship with a greater likelihood of using mental health services in later life (e.g. Spataro, Mullen, Burgess, Wells and Moss, 2004) it is important to consider the effect of CSA on survivors. From a PCT perspective, Erbes and Harter (2002) thought that CSA represents a potentially traumatic experience that violates personal constructions of self and others and that having construct systems that were different to other people made it harder for survivors to anticipate and understand other peoples'

behaviour. These differences were highlighted by Freshwater, Leach and Aldridge (2001), who found that the repertory grids of survivors of CSA indicated higher levels of depression and perceived distress, lower self-esteem and higher self / ideal self discrepancy than non-abused controls. Clarke and Llewelyn (1994) noted survivors' repertory grids had abuse as a central component of their constructions of self and relationships. For example, men in general were also construed as similar to their male abusers. In addition, they felt that as a result of being abused children learnt the behaviours and cognitions appropriate for being abused and also for being an abuser. The continuation of abuse in later life was noted by Alexander and Follette (1987). They suggested that survivors chose partners similar to their abusers because even though these relationships had negative consequences they were predictable. A seeming 'lack of choice' in taking up an abused / abusive identity was described by Pollock and Kear-Colwell (1994) in their study of the construct systems of two women with a history of CSA who later committed offences against their male partners. These women perceived themselves as abusers, despite their histories of victimisation. Further identification with an abusive role was found in the repertory grids of four male survivors of CSA by Clarke and Pearson (2000). Generally these findings suggest that abuse and love can be related in a confused manner following CSA. For example, Clarke and Llewelyn (1994) reported construct correlations in the grids of survivors of CSA. One patient's profile had a strong relationship between the constructs 'look after', 'dependent' and 'used by'. A second patient had a strong correlation between 'masculine', 'frightening', 'interested in sex' and 'confuses'.

Erbes and Harter (1998) have noted that although CSA did not reduce the cognitive complexity of survivors' construct systems, the content of their repertory grids was different to non-abused controls. These content differences were explored further by Harter, Erbes and Hart (2004), who found that survivors used fewer constructs to describe emotional arousal than non-abused controls. They

felt this may be related to repeated emotional invalidation, for example being pressurised to keep the abuse silent, which prevented survivors from attempts to meaningfully construe their experiences. Further writing on the traumatic nature of CSA by Erbes and Harter (2002) identified two central impacts of abuse. The first was an alteration in the individual's overall construct system so that negative, anomalous or threatening meanings are attached to events throughout life. The second was that because traumatic events lie outside the range of convenience of the individual's construct system, it is difficult to make meaning of them. They noted this follows from work by Sewell (1996) and Sewell et al. (1996) which is summarised in the previous section.

2.5.3 PCT therapy for trauma

Given the review of PCT and trauma above, a summary of therapeutic approaches within PCT will now be presented. Sewell (2005) has written a detailed account of PCT therapy for PTSD. The goal of therapy was to help the patient elaborate the traumatic experience so that it entered into more varied and hierarchically abstract relations with other life experiences. Elaboration of trauma was likely to require both the development of new dimensions of meaning as well as some reorganisation of how current constructs related to each other. As noted by Cromwell, Sewell and Langelle (1996), the important effects of psychological trauma were the failure of the individual to integrate the trauma construct into the total personal conceptual structure via overarching constructs. Without overarching constructs to integrate difference aspects of experience, an individual is left with a very restricted construct system. This leaves them with a limited ability to engage with the environment. This was highlighted in work by Klion and Pfenninger (1996), who worked therapeutically using a PCT approach with Vietnam veterans. They felt that following trauma, the veterans enacted a limited set of strategies and constructs in understanding the world. Therefore the goal of therapy was to increase the patient's ability to understand the world and

themselves. One of the key processes by which this might occur was the development of overarching constructs.

The importance of enabling the elaboration of personal constructions has been highlighted in PCT therapy for CSA survivors by Erbes and Harter (2002). They noted that the therapeutic relationship provides an environment where previously dominant constructions imposed by abusive relationships can be rejected and new constructions of self and relationships can be validated. In later work they cautioned that not all CSA results in mental health problems and that narratives where CSA survivors are seen as damaged or flawed should not be entered into until a relationship has been established with the client (Erbes and Harter, 2005). An integrative therapeutic approach influenced by PCT is Cognitive Analytic Therapy (CAT), which has largely been developed by Anthony Ryle (e.g. Ryle and Kerr, 2002). Although space does not allow for a detailed review of CAT, it is worth noting that CAT would encourage the client to develop an understanding of how constructs relating to abuse have influenced past and present relationships. It would then focus on strategies to change these influences (e.g. Pollock and Kear-Colwell, 1994).

From this brief review it may be apparent that the goals of therapy influenced by PCT are similar for both trauma and psychosis. The development of overarching constructs and of a hierarchically developed construct system seem important to both of the presenting problems. This leads to the question of what could be gained from an integration of this understanding from both trauma and psychosis perspectives.

2.6 What could Personal Construct Theory contribute to our understanding of trauma and psychosis?

Research has established a link between trauma and psychosis (see the review in this volume by Sporle, 2007). The importance of ongoing research on the effects of trauma to develop therapy for people who have psychosis has been noted by a number of authors (e.g. Mueser et al., 2002, Kilcommons and Morrison, 2005). This thesis aims to add to the existing knowledge of the relationship between trauma and psychosis by considering how trauma affects perception of self and other people in psychosis.

2.6.1 Elaboration of self in psychosis

The specific aims of this study are concerned with integrating our knowledge and understanding of PCT models of trauma and PCT models of psychosis to consider how trauma and psychosis may be related. It has already been established that people who have a diagnosis of schizophrenia have less elaborated selves than non-psychiatric controls (e.g. Gara et al., 1989). It has also been established that traumatic events are less elaborated than other life events (e.g. Sewell et al., 1996). In this study the way that trauma may affect one's self-concept or view of self will be investigated. It is possible that the invalidation caused by traumatic events leads to a view of self and others that may be pathological. Given the evidence that traumatic events are unelaborated in PTSD and that self-concept is unelaborated in psychosis, it may be because of traumatic events that people with psychosis have unelaborated self-concepts. This hypothesis would be in line with Sewell (2005), who has noted how traumatic events have a profound effect on one's self-view.

This work will be guided by PCT and one of the main measures will be the repertory grid. This study will combine ideas from PCT studies in schizophrenia and PCT studies in PTSD by using repertory grids that combine both life events

and perception of self and other people. The aim will be to examine the hierarchical identity structures in the repertory grids of people who have psychosis and to examine how traumatic life events may influence these hierarchical structures. This will be the first study to combine perspectives from trauma and psychosis using the concept of hierarchical identity structures. This study will also employ a relatively new measure of examining the relationships between constructs and elements, discussed in the next section.

2.6.2 Conflict in psychopathology

As noted by Bell, Winter and Watson (submitted) the notion that mental conflict is a feature of psychological problems seems obvious and has been a feature of therapy from early psychoanalysis through to modern approaches. The repertory grid lends itself well to an analysis of the types of conflict that may be present in a client's view of themselves and other people. This can be done by examining the relationship between elements and constructs. Bell (2004a) has developed a new measure of the inconsistencies or conflicts that may be present in a subject's construct system. Following Bell (2004a), we can consider the relationship between an element and two constructs and see whether the three components to their relationship fall in a predictable manner. For example, the element 'ideal self' may have a conflicting relationship with two constructs 'writing a thesis or not' and 'anxiety provoking or not'. This might be expressed in the statement 'I like writing a thesis, I don't like being anxious, but I associate writing a thesis with anxiety'. These types of conflict are similar to the dilemmas that may lead to problems in relationships highlighted in CAT (e.g. Ryle and Kerr, 2002). Bell et al. (submitted) found that in 80 clients referred to a National Health Service (NHS) Clinical Psychology department for psychotherapy the element 'ideal self' was associated with higher levels of conflict. This was shown by the element having an average conflict of 8.2% within clients' repertory grids. The element 'self now' had lower conflict levels, with an average of 6.2%. In this study, it was

hypothesised that there would be greater conflict in the element ‘self now’ following traumatic life events, because greater conflict within an element would prevent it from becoming elaborated.

2.6.3 Self and others in psychosis

The way that people who have psychosis perceive other people may facilitate our understanding of what the experience of psychosis may be like. The Self Other Scale (Dagnan et al., 2003) was noted as a measurement tool for self-other perception. Repertory grids can also investigate self-other relationships by comparing and contrasting how constructs used to represent ‘self’ are used to represent ‘other people’. This is operationalised by measuring the distance between the element ‘self now’ and elements that represent ‘other people’. This measure of integration was first used by Ryle and Breen (1972) to compare the application of constructs to self and others. It was used to compare self-other distances in the construct systems of non-psychiatric, depressed and bipolar disordered participants by Ashworth et al. (1982 and 1985). Although they did not find significant differences between the integration scores of depressed, bipolar and schizophrenic patients, they did not use this measure to investigate the effects of trauma on construing. Therefore, this study will extend the use of this measure to consider how trauma may operate in people who have experienced psychosis.

2.6.4 Elaboration of trauma in psychosis

As noted above, Sewell et al. (1996) have found that when there is low elaboration of traumatic events they are more likely to result in PTSD. At present, there has been no research using a PCT model to ascertain whether the same response occurs in people who have psychosis who have also experienced trauma. This issue will be addressed in the current study by examining the elaboration of traumatic life events in people who have had psychosis.

Unelaborated traumatic life events would possibly contribute to the invalidation that PCT models hypothesize to be a cause of psychosis. It is hypothesized that having unelaborated traumatic life events may be an important part of the experience of people who have psychosis.

2.7 Hypotheses

1. Participants who have had psychotic experiences who have also experienced significant traumas in their childhood will have a more unelaborated self concept than participants who have had psychotic experiences but no significant childhood traumas.

2. Participants who have had psychotic experiences who have also experienced significant traumas in their childhood will have a greater level of conflict concerning their self concept than participants who have had psychotic experiences but no significant childhood traumas.

3. Participants who have had psychotic experiences who have also experienced significant traumas in their childhood will have a greater distance between their concept of self and other people (i.e. experience more social isolation) than participants who have had psychotic experiences but no significant childhood traumas.

4. Participants who have had psychotic experiences who have also experienced significant traumas in their childhood will have a more unelaborated view of themselves when they experienced negative life events than participants who have had psychotic experiences but no significant childhood traumas.

Childhood trauma has not been fully defined in these hypotheses. This is because two main ways of defining trauma will be utilised for this study. The first definition will be in terms of the severity of trauma experienced, whether it is physical, emotional or sexual. Under this first definition, trauma encompasses a range of experiences. The second definition of trauma will be more precise and center on the experience of CSA. Under this second definition, any experience of CSA will count as an experience of significant childhood trauma. Although there are four hypotheses, each hypothesis will be tested twice under two definitions of trauma. The use of these two definitions will enable a comparison between the experience of trauma per se and the experience of CSA.

3. METHOD

3.1 Design

A cross sectional design comparing two groups was used. The Childhood Trauma Questionnaire (CTQ) (Bernstein and Fink, 1998) was used as the grouping variable in two ways:

1. The sample was divided into a high trauma and low trauma group, determined by 'severe' scores on the CTQ. If a participant had a 'severe' score on one of the 5 CTQ scales, they were placed in the high trauma group. The decision to use the 'severe' rating on the CTQ as a cut-off was based on guidance from the scoring manual for the CTQ. The severe cut-off score is the most restrictive on the measure and will exclude many low and moderate maltreatment cases while identifying only the most severe cases of maltreatment. In CTQ validation studies this cut-off has a sensitivity of capturing the most severe 5-10% of the distribution of scores.

2. The analysis was then repeated using a definition of trauma determined by the Sexual Abuse Scale (SAS) of the CTQ. If a participant scored 'none' on the SAS of the CTQ they were placed in the low CSA group. If they scored higher than 'none' they were placed in the high CSA group.

3.2 Participants

Participants were people who had experienced psychosis aged between 18 to 65 years old. They were a convenience sample recruited from psychiatric services in two NHS trusts through their care coordinators. The minimum inclusion criterion

for the study was evidence of at least one Schneiderian first rank symptom of schizophrenia (Schneider, 1959). This meant that most participants had a diagnosis of schizophrenia, schizoaffective disorder or bipolar disorder. However, some participants had no diagnosis, although they did still have experience of mental health problems. If necessary, confirmation of experience of a minimum of one Schneiderian first rank symptom was obtained by screening medical notes once the participant had consented to having their medical notes examined.

No inclusion criteria concerning length of time since last episode of psychosis were set. Therefore, participants ranged from those currently hospitalised following a recent period of psychosis, i.e. within the last few weeks, through to those for whom some time had elapsed since their last period of psychosis, i.e. some months or even years. Furthermore, there was no set number of episodes of psychosis that warranted inclusion or exclusion from the study. Some participants had recently had their first episode of psychosis, or recently recovered from their first episode of psychosis. Other participants had experienced a number of episodes of psychosis. These wide ranging inclusion criteria follow similar papers using a cross sectional design and a convenience sample (e.g. Kilcommons and Morrison, 2005, Mueser et al. 1998) where inclusion criteria have been minimal in order to assess a broad range of participants. The main exclusion criteria were a prior history of head injury, learning disability, or a primary diagnosis of drug and alcohol abuse.

3.3 Measures overview

An important consideration for selecting the measures used was the amount of time taken to complete each one. All the questionnaires selected were relatively brief, i.e. they each took between 5 to 15 minutes to complete. The structured interview constituting the repertory grid was designed specifically for this study in

order to answer the main hypotheses. The interview asked participants to consider how they view themselves now, themselves at different times in their life, themselves in different roles in their life and how they view other people. It was anticipated that the structured interview would take approximately an hour. Therefore the whole process of completing questionnaires and the structured interview was estimated to take two hours.

3.3.1 Demographic Data

Basic demographic data was obtained on each participant in order to describe the sample. During the collection of the demographic data, the interviewer asked some questions about the participants' background history in order to establish rapport with the participant. This discussion at the start of the interview also enabled the completion of the negative scale of the Positive and Negative Symptoms Scale (PANSS). This scale will be described in section 3.5.1 below. The following demographic data was collected:

- Gender
- Age
- Marital status
- Number of children
- Time since first contact with mental health services
- Number of inpatient admissions
- Number of episodes of psychosis
- Current admission status
- Medication
- Ethnicity

3.4 Measurement of traumatic life events

As noted above, to measure childhood traumatic life events and to create the trauma groups, the Childhood Trauma Questionnaire was used. Given the time that had elapsed since childhood, the Stressful Life Experiences Screening – Long Version (SLES) (Stamm et al., 1996a) was chosen to measure traumatic life events that occurred between childhood and the present day. This would enable later life trauma to be taken into consideration in the final analysis. The Impact of Event Scale Revised (IES-R) (Weiss and Marmar, 1997) was chosen to measure the presence of current symptoms that are indicative of a PTSD type reaction to previous life experiences. The IES-R enabled the structured interview data to be placed within the context of current symptoms related to previous life traumas. There was no intention when using these measures to assess participants for PTSD. It should also be noted that although there is good reliability and validity data for the trauma measures (see below), they have not been validated for use in a population with people who have psychosis. However, studies have shown that reports of trauma history in patients with mental health problems are generally reliable (Goodman et al. 1999). In addition, research also indicates that when reports of trauma are unreliable in mental health populations, this is more likely to reflect under-reporting of maltreatment rather than false positives (Fergusson, Horwood and Woodward, 2000). More information on the measures now follows:

3.4.1 Childhood Trauma Questionnaire (Bernstein and Fink, 1998)

The CTQ (see Appendix 4) is appropriate to use with adults and inquires about five types of maltreatment that occurred during childhood, which are identified on the following five scales:

- Emotional Abuse
- Physical Abuse
- Sexual Abuse
- Emotional Neglect
- Physical Neglect

Each scale has four levels of maltreatment: None, Low, Moderate and Severe. There are 28 items and it takes about 5 minutes to complete. Each item has a Likert scale response format with the options Never True, Rarely True, Sometimes True, Often True and Very Often True. The CTQ also includes three items that assess minimization or denial in order to detect participants who may underreport maltreatment. The CTQ was validated with data from over 2,000 respondents, including both clinical and non-clinical groups (see Bernstein and Fink, 1998). It has also been used in previous studies examining the links between childhood trauma and psychosis (e.g. Roy, 2005).

3.4.2 Stressful Life Experiences Screening – Long Form (Stamm et al., 1996)
This 20 item measure (see Appendix 5) is designed for use with older adolescents and adults. As noted by Stamm et al. (1996), it screens for major life events that could be stressful or important in a person's life. It is not intended for use in the diagnosis of PTSD, but is designed to screen for potential traumatic stressors in clinical or research settings. Each item asks the participant whether they have experienced a stressful life experience, for example 'witnessing or experiencing a serious accident or injury'. If a participant has experienced an event, the questionnaire asks them to record on a scale between 0 and 10 how stressful the event was when it first occurred and then how stressful the event is now. The items are based on a study with 1117 cases and the measure has been validated on 219 participants (Stamm and Rudolph, 1996). Although no reliability studies have been published to date, the questionnaire was deemed suitable for

the current study to use as a brief screening tool. The measure has been used as a screening tool in previous research (e.g. Sprang, 1999).

3.4.3 Impact of Event Scale – Revised (Weiss and Marmar, 1997)

The original 15 item Impact of Event Scale (Horowitz, Wilner and Alvarez, 1979) was devised to identify intrusion and avoidance following a specific traumatic stressor. The revised scale includes an extra seven items that tap the domain of hyper-arousal. Therefore, the 22 item IES-R (see Appendix 6) has three scales examining the emotional and cognitive experiences of intrusion, avoidance and hyper-arousal that are known responses to traumatic stress. Participants are asked to complete the measure in relation to the distress they have experienced in the past seven days. Each item has a five point Likert scale response ranging from 'Not at all' through to 'Extremely'. The three subscales are calculated as the mean of the items that compose them. Therefore, each subscale has a minimum score of 0 and a maximum score of 4.

Weiss and Marmar (1997) reported good reliability and validity data for the three subscales. This reliability and validity had further support in 2004, including studies on translated versions of the IES-R (Weis, 2004). Examples of additional support for the reliability and validity of the IES-R have been reported by Creamer, Bell and Failla (2003) and Baumert, Simon, Gundel, Schmitt and Ladwig (2004). The IES-R has been used in previous studies examining the incidence of trauma in people who have psychosis (e.g. Meyer, Taiminen, Vuori, Aijala and Helenius, 1999).

3.5 Measurement of psychosis

To measure current symptoms of psychosis, two measures were chosen. These were the negative scale of the Positive and Negative Syndrome Scale (PANSS)

(Kay, Fiszbein and Opler, 1987) and the Psychotic Symptom Rating Scales (PSYRATS) (Haddock, McCarron, Tarrier and Faragher, 1999). It was important to measure current psychotic symptoms to put the structured interview data into context. The measures provided some insight into how well participants were at the time of interview, by capturing both positive and negative symptoms of psychosis. More information on these measures is presented below:

3.5.1 Negative Scale of the Positive and Negative Syndrome Scale (Kay et al., 1987)

The PANSS is a 30 item, 7-point rating instrument that is completed via a semi-structured interview that typically takes between 45 minutes to one hour to administer. 7 items examine positive symptoms (e.g. delusions and hallucinations), 7 items examine negative symptoms (e.g. social withdrawal) and 16 items examine general psychopathology (e.g. depression and anxiety). A study on a sample of 101 people with a diagnosis of schizophrenia found evidence to support its reliability and validity (Kay et al. 1987). Given the time pressure to complete the assessments in this study, it was decided to use only the negative scale of the PANSS (see Appendix 7). The negative scale is completed based on a patient's social interaction during the interview. It measures the negative symptoms of schizophrenia including blunted affect, emotional withdrawal, poor rapport, and social withdrawal, difficulty in abstract thinking, lack of spontaneity and reduction in flow of conversation. Previous studies investigating trauma and psychosis have used only the positive and negative scales (e.g. Kilcommons and Morrison, 2005). For this study it was decided to use a quicker measure to obtain information on positive symptoms (see below).

3.5.2 Psychotic Symptom Rating Scales (Haddock et al., 1999)

This is a 17 item measure (see Appendix 8) that consists of two scales designed to rate auditory hallucinations and delusions. The auditory hallucinations subscale consists of 11 items and taps general symptom indices of frequency, duration, severity and intensity of distress and also specific symptom dimensions of controllability, loudness, location, negative content and beliefs about origin of voices and their disruption. A five point ordinal scale is used to rate symptom scores (0-4). The delusions subscale consists of six items which are also rated on a five point ordinal scale (0-4). It includes items on preoccupation, distress, duration, conviction, intensity of distress and disruption caused by delusions. Haddock et al. (1999) reported excellent inter-rater reliability for the PSYRATS. They also reported good evidence for the validity of the scale. The PSYRATS has often been used to measure hallucinations and delusions as an outcome measure in therapy research trials (e.g. Cather, Penn, Otto, Yovel, Mueser and Goff, 2005, Wykes et al., 2005).

3.6 Structured interview

The focus of the interview was the completion of the Repertory Grid (Kelly, 1955). Repertory grids are a methodological component of PCT that enable the researcher to explore an individual's personal construct system. The results of the interview are recorded in a matrix of rating scores. Jankowicz (2004) noted that there are four main components to a repertory grid, the topic, elements, constructs and ratings. They will be briefly discussed below:

1. The topic is the realm of discourse or 'slice of experience'. In this study the topic was how participants view themselves and other people and their traumatic life experiences.

2. The elements are ‘examples of, samples of, instances of, or occurrences within, a given topic’ (Jankowicz, 2004). In this study the elements supplied were a mixture of other people and ‘self’ in a number of different contexts.
3. The constructs are ‘attributes that an individual uses to make sense of their experience’ (Jankowicz, 2004). They have two contrasting poles.
4. Ratings are ‘numbers on a scale applied to each element to each construct, by which an individual expresses a meaning’ (Jankowicz, 2004). In this study, participants used the constructs to rate each element on a six point scale.

The first step in the procedure was to elicit the individual list of elements. In this study, there were 17 elements used that came from three different categories, as shown in Table 1. The first category of elements was ‘other people’. For this category, participants were asked to supply the name of the person who fitted the role title. There were 8 elements in this category. The second category of elements was the participant at different times in their life, or different self states. These elements were fixed for each participant and there were five elements in this category. The third category of elements was the participant in a positive or negative life event, both before the age of 16 and after the age of 16. The age 16 was given as an arbitrary age to divide the events into ‘early life’ and ‘later life’ events. However, in practice, the age 16 was not strictly adhered to. For example, for some people the ‘early life’ event may have been when aged 17. These elements were obtained during discussion with the participant where they were asked to identify an event and remember themselves as they were experiencing the event.

Table 1: Element categories used in this study

Category	Elements
Other people	Father Mother Brother / Sister or close relative before age 16 Spouse / Partner or person close to this role Man you like Man you dislike Woman you like Woman you dislike
Self at different times in life, different roles in life and self states	Self as a child Self as a teenager Self as a service user Self now Ideal self
Self during positive and negative life events	Self during worst life event before age 16 years old Self during best life event before age 16 years old Self during worst life event after age 16 years old Self during best life event after age 16 years old

The elements were recorded in a blank grid in the order listed below:

1. Father
2. Mother

3. Brother / Sister or close relative present before age 16 years old
4. Self during worst life event before age 16 years old (NLE1)
5. Self during best life event before age 16 years old (PLE1)
6. Spouse / Partner or person who comes close to filling that role
7. Man you like
8. Man you dislike
9. Woman you like
10. Woman you dislike
11. Self as a child
12. Self as an adolescent
13. Self now
14. Ideal self
15. Self during worst life event after age 16 years old (NLE2)
16. Self during best life event after age 16 years old (PLE2)
17. Self as a service user

Once the elements were elicited, the next step was to use the 'triadic method' to elicit constructs. Kelly's (1955) Self-identification Form was used in this study, meaning that the element 'self now' was retained in all triadic presentations. Therefore 'self now' was always compared with two of the other elements. The other elements were kept in the order listed above. All the elements were written on separate cards. Given that there were 17 elements, but 'self now' was always used in a triad, a total of 15 bipolar constructs were elicited from each participant. To generate a construct, the participant was presented with three of the elements. They were asked the question "In what important way are two of these alike and thereby different from the third?" The answer to this question gave the emergent construct pole, which was written down. The researcher then attempted to elicit the contrast pole of the construct by asking "In what way does the third element differ from the other two?" The answer to this question was then written

down as the contrast pole of the construct. If participants were unable to understand the instruction, they would be given an example as if the author was generating a construct. After further discussion of the example if the participant was unable to understand the triadic method, then a more simple method for obtaining constructs was used. In this instance, the 'self now' and one other element would be compared in order to generate an emergent construct pole and its contrast pole.

The final step in the procedure was to ask the participants to rate the elements against each bipolar construct. A rating scale of 1 to 6 was used, with each pole of the construct being allocated 1 and 6. Participants were reminded that because it was a rating scale, values from 1 to 6 could be used to rate an element on a construct. The emergent pole was always given the value '6' and the contrast pole the value '1'. The grid was completed by asking the participant to rate each element on the construct immediately after it was obtained.

3.7 Computer programmes used to analyse the repertory grids

There were three computer programmes used to analyse the repertory grid data. The rationale for using each programme is presented below:

3.7.1 Idiogrid (Grice, 2004)

This programme was used to produce graphical representations of the repertory grid results and examples are presented in Figures 14 and 16 below. It was also used to calculate the repertory grid measure 'distance between 'self now' and other people' that was used to test Hypothesis 3.

3.7.2 Gridstat (Bell, 2004b)

This programme was used to calculate the conflict measure used to test Hypothesis 2. The concept of conflict was discussed in the introduction and its measurement will now be described in more detail. Following Bell (2004a), the first stage in measuring conflict using repertory grids is to consider the distance between an element and two constructs. Given that there are three items of interest, the element and the two constructs, if they have a 'balanced' relationship with each other, then the distances between the three items should follow the rules for forming a triangle. In other words, the longest distance must not exceed the sum of the two smaller distances. If this rule is broken then a conflict situation between an element and two constructs is said to have arisen. Therefore, conflict between an element and two constructs can be defined as an occurrence of a 'triangular inequality' (see Bell, 2004a).

The repertory grids used in this study had 15 constructs and 17 elements, which means there are a total of 1785 triadic comparisons, or potential conflict situations. The Gridstat programme is able to calculate all the element and construct distances and examine all of the potential conflict situations. The main conflict of interest for Hypothesis 2 was in the current self concept, expressed in the element 'self now'. Therefore, Gridstat was used to identify all the conflicting triadic comparisons using the element 'self now' with all the constructs. It presented the conflicting triadic comparisons as a percentage of all the possible comparisons for the element 'self now'.

3.7.3 HICLAS (de Boeck, van Damme and van Mechelen, 1992)

As noted in the Introduction, Section 2.4.2, the HICLAS programme is an algorithm that can be used to generate a model of the relationship between constructs and elements. Given that it is an iterative process, the process of analysis starts at a rational heuristic built into the algorithm. The iterative procedure continues until iteration does not improve the goodness-of-fit of the

solution to the data matrix. A major consideration when using HICLAS is the choice of the rank of the final model. The choice of rank in HICLAS involves a trade-off between parsimony (low rank) and goodness-of-fit (which improves with increasing rank). A guideline is the choice of a rank beyond which the goodness-of-fit decreases slightly in comparison with previous decreases (Rosenberg et al. 1996). Previous studies investigating self-elaboration in schizophrenia have used HICLAS structures at rank 3 (e.g. Gara et al., 1987). Studies investigating trauma have used HICLAS structures at rank 4 (Sewell et al., 1996) and rank 5 (Winter and Gould, 2000). The goodness of fit data for ranks 1 through to 8 was calculated for each participant. The mean goodness of fit at each rank for all 21 participants is plotted in Figure 1, Appendix 10. Visual inspection of this graph indicated that the goodness of fit began to flatten out at rank 4, eventually seeming to level off at rank 8. This is a rather subjective process and therefore the results of previous research must also be taken into consideration when choosing the HICLAS rank to utilise. Given previous work by Sewell (1996) and Sewell et al. (1996) where analysis of life events repertory grids was analysed at HICLAS rank 4, the decision was made to use rank 4 for all subsequent HICLAS data analysis.

Therefore, once the decision on which rank to use had been made, the next stage was to use HICLAS to produce graphical representations of each individual's repertory grid. Examples of this output can be seen in Figure 15, Section 4.8.5 and Figure 17, Section 4.9.5 below. HICLAS uses set-theory to create a hierarchical model of the relationship between elements. As a simple example, consider an element 'child' that has a strong relationship with the constructs 'happy', 'joyful' and 'carefree'. Now consider a second element 'teenager' that has a strong relationship with the elements, 'happy', 'joyful', 'carefree', 'independent' and 'knowledgeable'. It can be argued that the element 'teenager' subsumes or overarches the element 'child' because it contains the same relationships as the element 'child' and a number of additional

relationships. In this example, the element ‘teenager’ would have a higher index of elaboration than the element ‘child’ to denote the fact that it has a richer, more developed quality than the element ‘child’. In this study there were two main ways that the index of elaboration was calculated. The first was by the level of an element within the HICLAS graphical output, with higher figures indicating a higher level of elaboration. The second was by the number of constructs connected to an element, with more connected constructs indicating a higher index of elaboration. In the example just described the element ‘teenager’ would have a higher elaboration index by level because it would overarch the element ‘child’. It would also have a higher elaboration index by connected constructs when compared to the element ‘child’, because it would have stronger relationships with a greater number of constructs.

The HICLAS programme was used to test Hypotheses 1 and 4. The information required to test Hypothesis 1 was the elaboration index of the element ‘self now’ and to test Hypothesis 4 the elaboration indices of the positive and negative life events were used.

3.8 Methodology

Once research and ethics approval was obtained, inpatient units and community mental health teams within the two Trusts were approached to recruit participants to the study. Appropriate mental health professionals were advised about the study through their team meetings. They identified participants who met the inclusion criteria who they thought may want to participate in the study. The mental health professionals gave the participant information sheet (see Appendix 1) to potential participants and allowed them a minimum of 24 hours to consider whether they would like to take part in the study. Following this time period, if a potential participant felt that they would like to take part, the mental health

professional confirmed with the potential participant that it was acceptable for the researcher to contact them to discuss the study.

Once the potential participant agreed to their name being passed to the researcher, a meeting was arranged between the researcher and the potential participant. At this meeting, the information sheet about the study was discussed again with the potential participant. They were encouraged to consider whether or not they would like to take part in the study. They were advised that their decision to take part in the study would not affect their ongoing or future care. At this point, if they still wanted to take part in the study, the consent form (see Appendix 2) was discussed with the potential participant. Following discussion of the consent form they were asked if they understood the form or if they had any questions about the form. They were then asked to sign the form. Once consent had been obtained, the researcher arranged to meet with the participant to complete the questionnaires and interview. All questionnaires and the interview were conducted in a private interview room with only the researcher present in the room.

3.9 Feedback Meeting

All participants were offered the opportunity to receive feedback on their repertory grid once it had been analysed. In this meeting the main findings from their repertory grid were presented to the participant to see if they made sense to the participant and reflected their understanding of themselves. In addition, the participants' views on the process of completing the grid and their understanding of the constructs they elicited were discussed. A maximum time of one hour was given for the feedback meeting. Feedback to participants was not essential and most participants did not wish to have feedback on the repertory grid. It was built into the study design for two main reasons:

1. As a method of auditing the study to enable the researcher to 'check out' whether the results of the grid made sense to the participant and what they thought about the repertory grid interview
2. To enable participants to gain additional benefit from taking part in the study. It was hoped that presenting their results in a sensitive manner may give them insight into the way that they view themselves and other people which may enrich their experience of taking part in the study.

3.10 Power Calculation

Using Cohen's conventions for effect sizes (Cohen, 1992), a total sample size of 25 would be required to detect a mean difference amounting to a medium effect size (power = 0.80, alpha error = 10%, 1 tailed).

3.11 Ethical Considerations

Approval for the study was applied for from the Central Research Ethics Committee (COREC) in April 2006. Permission to proceed with the study was given in June 2006 (see Appendix 3).

3.11.1 Confidentiality

Participant confidentiality was assured at all times, both verbally and via the information sheet. The information sheet and consent form informed participants that they did not have to take part in the study and that if they chose not to take part or chose to withdraw at any time their present and future care would not be

affected. Only the researcher had access to any information identifying participants in the study.

3.11.2 Procedure for managing participants' distress

Due to the nature of a study that enquires about the effect of traumatic life events on mental health and one's self concept, difficult issues may have been raised and it was possible that a participant could become distressed. However, it was also possible that some participants may have experienced some therapeutic benefits from having the opportunity to consider how traumatic life experiences may have affected their self concept. In order to address the issue of distress, participants were required to consent to the mental health professional that referred them to the study being contacted if they became distressed during the interview. This was noted in the participant information sheet. When consent was obtained, it was explained to participants that if they became distressed the interview could be suspended and the researcher was available to discuss their distress and offer them support. The procedure for managing distress during the interview was arranged as follows:

- When distress was first encountered, the interview would be suspended. The participant would be offered support by the researcher.
- If the participant appeared to have settled following supportive intervention and reported being able to continue, the session would continue. However, the session could be shortened and finished at a later date if the participant still appeared to be distressed when the interview was resumed.
- If the participant did not respond to support from the researcher or appeared to be completely overwhelmed the interview would be stopped. At this stage the participant's keyworker would be contacted immediately.
- In all cases where participants became distressed during the interview, they were advised that the mental health professional that referred them would be

contacted and informed that they became distressed during the interview. An attempt would be made to make this contact with the participant's agreement. It was emphasized that an important part of the care they received was for staff to monitor their mental well being. This included any concerns about distress that they may have experienced during the interview.

3.11.3 Time considerations

The total time spent to complete the assessments was approximately two hours. Some of the participants in the study had difficulty concentrating because of their mental health needs. Therefore regular breaks and the opportunity to complete the assessment over more sessions was offered to each participant.

4. RESULTS

The Results section will commence with a description of the sample in terms of basic demographic information and use of mental health services. The male and female participants will be compared in order to account for any potentially confounding affects of gender on the results. Following the results for tests of the main hypotheses, the section will finish with the presentation of two case examples. Given that the variables tested were not normally distributed, the Mann-Whitney U test (MWU) was used to compare the mean difference between two groups in reported analyses. Furthermore, the final sample size was smaller than expected and therefore the power of reported analysis is lower than reported in the Method. Rather than reporting post-hoc power and its associated problems (e.g. Faul et al., in press), effect sizes will be reported in tables and main text where appropriate.

4.1 Demographic information

The results for the demographic information are summarised in Table 2. There were 21 participants who took part in the study. There were 11 females and 10 males. The age range was from 27 to 53 (mean = 40.9, s.d. = 7.8). In terms of their family characteristics, 10 were single, two lived with a partner, four were married, four were divorced and one was widowed. The number of children participants had ranged from 0 to 4 (mean = 1.2, s.d. = 1.4). In terms of ethnicity, there were 17 British participants, one was British Asian, one was Pakistani, one was Chinese and one was Portuguese. The number of years using mental health services ranged from 2 to 32 (mean = 16.8, s.d. = 9.4). The number of hospital admissions ranged from 0 to 15 (mean = 4, s.d. = 4). Only three participants were not taking antipsychotic medication at the time of the study. 19 participants were

living in the community, one was on an informal hospital admission and one was an inpatient under Section 3 of the Mental Health Act 1983.

4.1.1 Drop outs

There were eight people who consented to take part but did not complete the study. There was one female and seven males with an age range from 23 to 58 (mean = 44.5, s.d. = 13.4). In terms of ethnicity, six were British and two were African. They were all taking antipsychotic medication, five of them lived in the community and three were inpatients under Section 3 of the Mental Health Act. The number of years they had been using mental health services ranged from 1 to 36 years (mean = 18.4, s.d. = 14.8). The number of hospital admissions they had ranged from 1 to 7 (mean = 4, s.d. = 2).

4.1.2 Male / female comparison

Analysis of the demographic variables in Table 2 by gender is reported in Appendix 11. The only significant effect of gender was for the number of years using mental health services (MWU=26.0, p=.041, 2 tailed). Females had a greater number of years using mental health services than the males. In addition, all questionnaire data was analysed for an effect of gender. The results of this analysis are reported in Appendix 11 and revealed no significant effects of gender at the 5% level on any questionnaire variables.

Table 2: Summary of demographic information for 21 people who had experienced psychosis.

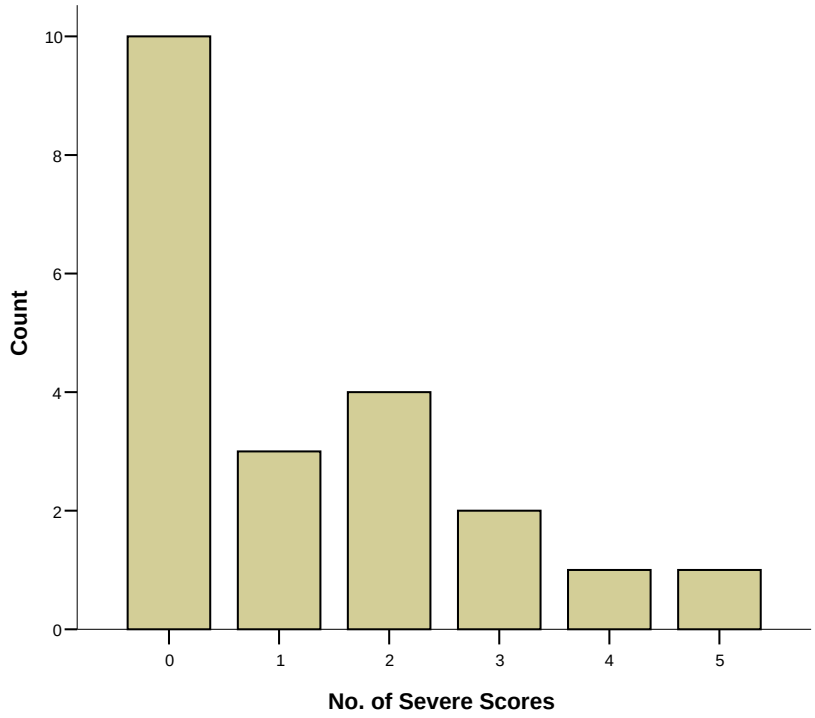
		Male N=10	Female N=11	Total Sample N=21
Age	Mean	41.4	40.5	40.9
	SD	6.3	9.3	7.81
	Range	31 – 53	27 – 53	27 – 53
Years using MH Services	Mean	13.2	20.0	16.8
	SD	7.0	10.4	9.4
	Range	2 – 22	2 – 32	2 – 32
No. of Admissions	Mean	4.8	3.6	4.2
	SD	3.3	4.2	4.8
	Range	1- 12	0 – 15	0 – 15
Ethnicity	British	9	8	17
	Asian	0	2	2
	Other	1	1	2

4.2 Comparison between high and low trauma groups

As noted in the Method section, the CTQ was used to divide the sample into high and low trauma groups. If a participant scored in the severe range on any CTQ scale, they were placed in the high trauma group. The frequency of severe scores on any scale of the CTQ is shown in Figure 2. It shows that there were 10 people in the low trauma group, because they did not score in the severe range on any scale of the CTQ. The high trauma group was composed of three people who scored in the severe range on one CTQ scale, four people who scored in the

severe range on two CTQ scales, two people who scored in the severe range on three CTQ scales and one person who scored in the severe range on all five CTQ scales.

Figure 2: Bar chart to show the frequency of severe scores on any scale of the CTQ for 21 people who had experienced psychosis.



4.2.1 Demographic comparison between the high and low trauma groups

Analysis of the demographic variables by high and low trauma is reported in Appendix 12. The only significant difference between the two groups was in the number of hospital admissions (MWU=27.5, p=.050, 2 tailed). This indicated that the high trauma group had a greater number of hospital admissions than the low trauma group. Additionally the distribution of males and females in the high and low trauma groups was analysed using a 2*2 (gender*trauma) chi square test.

The test revealed no significant difference between the two groups on the basis of gender (chi square=1.17, df=1, p=.395, two sided).

4.2.2 Distribution of scores on the CTQ scales for the high and low trauma groups

The distribution of CTQ scores for the high and low trauma groups and a statistical comparison between the two groups is presented in Appendix 12. The high trauma group had significantly higher scores on the emotional, physical and sexual abuse and physical neglect scales of the CTQ than the low trauma group. Generally this result indicated a difference between the high and low trauma groups that added validity to the creation of the groups.

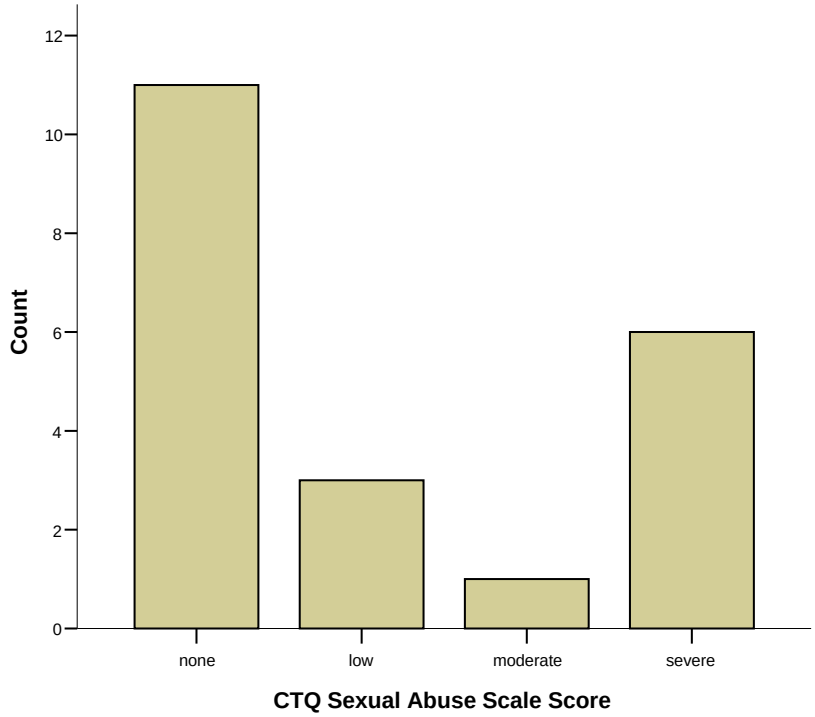
4.2.3 Other questionnaire comparisons for the high and low trauma groups

The full results for comparison between the high and low trauma groups on the SLES-L, IES-R, negative scale of the PANSS and PSYRATS are presented in Appendix 12. Generally the results indicated that the high trauma group had significantly higher scores on the SLES-L, but that there was no difference between the two groups on the IES-R, PANSS and PSYRATS.

4.3 Comparison between high CSA and low CSA groups

As noted in the Method section, the CTQ was also used to divide the sample into high CSA and low CSA groups. The distribution of scores on the SAS of the CTQ is shown in Figure 3. It demonstrates how the low CSA group was formed by the 11 participants who scored ‘none’ on the SAS of the CTQ. The high CSA group was formed by three participants who scored ‘low’, one participant who scored ‘moderate’ and six participants who scored ‘severe’ on the SAS.

Figure 3: Bar chart to show the frequency of scores on the Sexual Abuse Scale of the CTQ for 21 people who had experienced psychosis.



Before commencing the comparison between the high and low CSA groups it may be worthwhile to examine the overlap between the high and low CSA group and the high and low trauma group. Table 3 below highlights that most members of the low trauma group were also members of the low CSA group. In addition, most members of the high trauma group were also members of the high CSA group. However, one participant was in the high CSA group, but in the low trauma group. This participant had scored ‘none’ on all scales of the CTQ, except for a score of ‘moderate’ on the sexual abuse scale of the CTQ. Furthermore, two participants were in the low CSA group but also in the high trauma group. These participants had therefore scored ‘none’ on the sexual abuse scale of the CTQ, but scored in the severe range on at least one other CTQ scale. In summary it

seems that for most people who had experienced severe trauma this included sexual abuse, but this was not always the case.

Table 3: Cross-table to show the overlap between two methods for dividing a sample of 21 people into two groups. The first grouping was by high / low trauma and the second by high / low CSA

	Low CSA	High CSA	Total
Low Trauma	9	1	10
High Trauma	2	9	11
Total	11	10	21

4.3.1 Demographic comparison between the high and low CSA groups

Analysis of the demographic variables by high and low CSA is reported in Appendix 13. There were no significant differences between the two groups on three demographic variables. The distribution of males and females in the high and low CSA groups was analysed using a 2*2 (gender*CSA) chi square test. The test revealed no significant difference between the two groups on the basis of gender (chi square=0.43, df=1, p=1.00, two sided) and indicated a near perfect distribution of males and females between the high and low CSA groups.

4.3.2 Distribution of CTQ scores for the high CSA and low CSA groups

The distribution of CTQ scores for the high and low CSA groups and a statistical comparison between the two groups is presented in Appendix 13. The high CSA group had significantly higher scores on the emotional and physical abuse scales. However, there was no significant difference between the two groups on the physical and emotional neglect scales of the CTQ. Generally these results indicate a difference between the high and low CSA groups, although they also

indicate that there were similar levels of physical and emotional neglect between the high and low CSA groups.

4.3.3 Other Questionnaire comparisons for the high and low CSA groups

The full results for comparison between the high and low trauma groups on the SLES-L, IES-R, negative scale of the PANSS and PSYRATS are presented in Appendix 13. Generally the results indicated that the high CSA group had significantly higher scores on the SLES-L and on the IES-R, but that there was no difference between the two groups on the PANSS and PSYRATS.

4.4 Test of Hypothesis 1

4.4.1 Restatement of Hypothesis 1

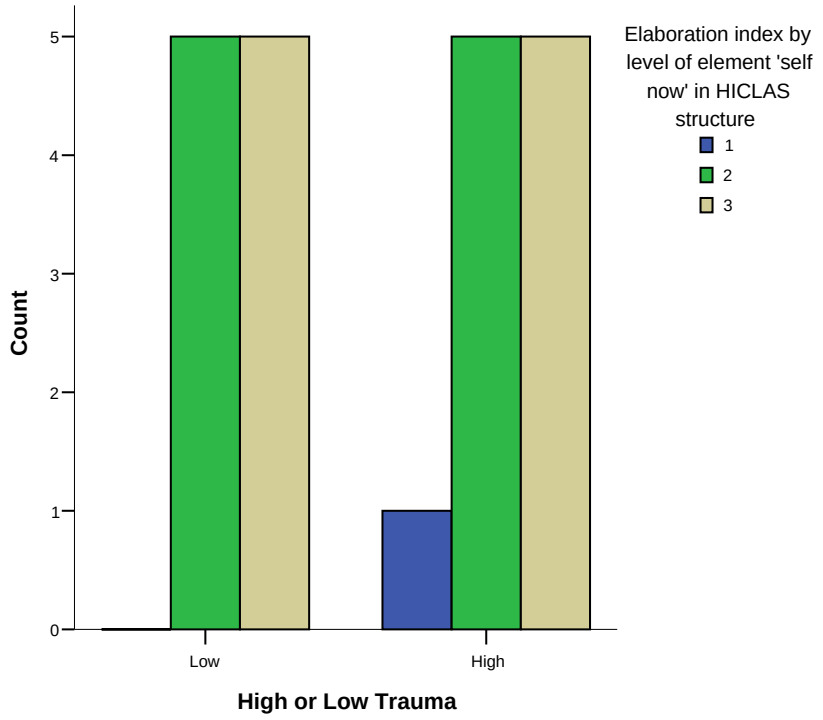
Participants who have had psychotic experiences who have also experienced significant traumas in their childhood will have a more unelaborated self concept than participants who have had psychotic experiences but no significant childhood traumas.

4.4.2 Testing the hypothesis by dividing the sample according to high and low trauma

In order to test Hypothesis 1, the high and low trauma groups were compared on their HICLAS elaboration indices for the element ‘self now’. There were two main ways to record the elaboration of ‘self now’. The first was the level of ‘self now’ within the hierarchical structure of all the elements. Higher numbers indicated greater elaboration, because they represented the level of the element within the HICLAS hierarchy (see Figures 15 and 17 in Sections 4.8.5 and 4.9.5 respectively). The second was by the number of constructs connected to ‘self now’. As with level, higher numbers indicated greater elaboration. Having more

constructs connected indicates that an element is more richly defined and thus more elaborated.

Figure 4: Bar graph to show the frequency of elaboration index scores for 21 people who had experienced psychosis. The index was the level of element 'self now' in the HICLAS structure. The participants were divided into high and low trauma groups, with the high trauma group scoring 'severe' on at least one scale of the CTQ.

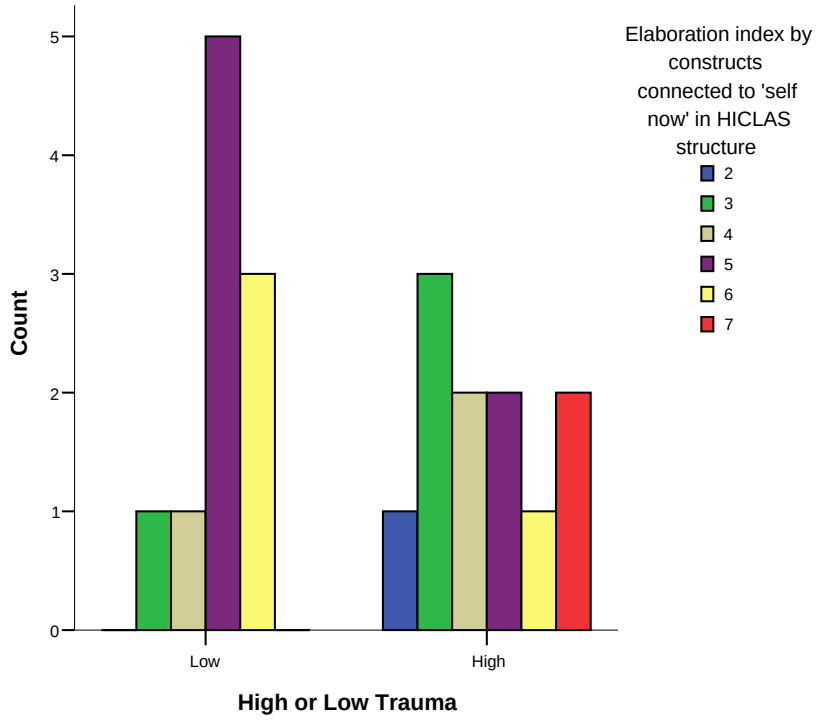


A summary of the elaboration index results by level of 'self now' is shown in Table 11, Appendix 14. The frequency of these scores is presented in Figure 4. As Figure 4 shows, the high and low trauma groups were very similar. The only difference was an extra participant in the high trauma group whose elaboration index for the element 'self now' was at level one. The level of 'self now' in the

high and low trauma groups was compared using a Mann-Whitney U test. The result indicated that there was no significant difference at the 5% level between the two groups (MWU=50.0, p=.440, 1-tailed). The corresponding effect size was small (Cohen's d=.231). Therefore the elaboration index by level of 'self now' did not support Hypothesis 1.

The elaboration index scores according to number of constructs connected to 'self now' are shown in Table 11, Appendix 14. The frequency of these scores is presented in Figure 5. The low trauma group had more participants scoring in the range five to six than the high trauma group. The high trauma group tended to have more scores in the range two to four than the low trauma group. The surprising result was that the high trauma group also had the highest elaboration index scores, with two participants having seven constructs connected to the element 'self now'. Despite the unexpected frequency distributions, the mean elaboration score for the low trauma group (mean = 5.00) was greater than that for the high trauma group (mean = 4.45). The elaboration index by constructs connected to 'self now' in the high and low trauma groups was compared using a Mann-Whitney U test. The result did not indicate a significant difference at the 5% level between the two groups (MWU=42.0, p=.189, 1-tailed). However, the corresponding effect size was medium (Cohen's d=.400). Therefore when elaboration was measured by constructs connected to 'self now' there was some evidence to suggest that the element 'self now' was more elaborated in the low trauma group.

Figure 5: Bar graph to show the frequency of elaboration index scores for 21 people who had experienced psychosis. The index was the number of constructs connected to the element 'self now'. The participants were divided into high and low trauma groups with the high trauma group scoring 'severe' on at least one scale of the CTQ.

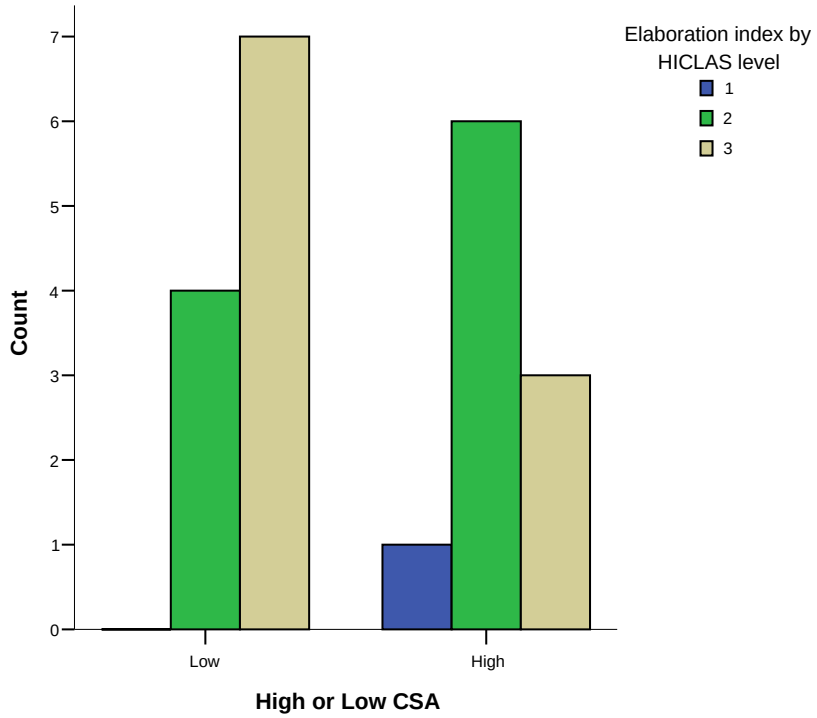


4.4.3 Testing the hypothesis by dividing the sample according to high and low CSA

The analysis was repeated with the sample divided according to CSA. A summary of the elaboration index scores for level of 'self now' is presented in Table 12, Appendix 15. The frequency of these scores is presented in Figure 6. As Figure 6 shows, there was a difference between the high and low CSA groups. The low CSA group had a greater frequency of scores at level three than the high CSA group. The level of 'self now' in the high and low CSA groups was

compared using a Mann-Whitney U test. The result indicated that there was no significant difference at the 5% level between the two groups (MWU=34.5, p=.094, 1-tailed). However, the corresponding effect size was large (Cohen's d=.769).

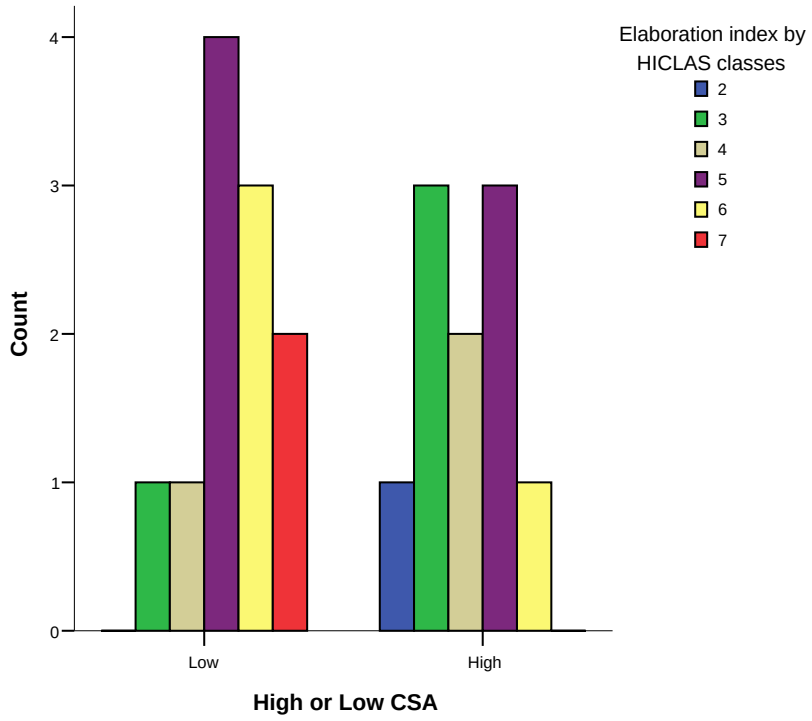
Figure 6: Bar graph to show the frequency of elaboration index scores for 21 people who had experienced psychosis. The index was the level of element 'self now' in the HICLAS structure. The participants were divided into high and low CSA groups, with the low CSA group scoring 'none' on the SAS of the CTQ.



The elaboration index scores according to number of constructs connected to 'self now' are summarised in Table 12, Appendix 15. The frequency of these scores is presented in Figure 7. As Figure 7 shows, the low CSA group had more constructs connected to 'self now' than the high CSA group. In contrast to when

the sample was grouped according to ‘high and low trauma’, two participants who had seven constructs connected to the element ‘self now’ were now in the lowest group rather than the highest group. The elaboration index by constructs connected to ‘self now’ in the high and low trauma groups was compared using a Mann-Whitney U test. The result indicated a significant difference at the 5% level between the two groups (MWU=24.0, p=.014, 1-tailed), with a large corresponding effect size (Cohen’s d=1.11). Therefore when the sample was divided into a high and low CSA group comparison of elaboration indices of ‘self now’ provided some support for Hypothesis 1.

Figure 7: Bar graph to show the frequency of elaboration index scores for 21 people who had experienced psychosis. The index was the number of constructs connected to the element ‘self now’. The participants were divided into high and low CSA groups with the low CSA group scoring ‘none’ on the SAS of the CTQ.



4.5 Test of Hypothesis 2

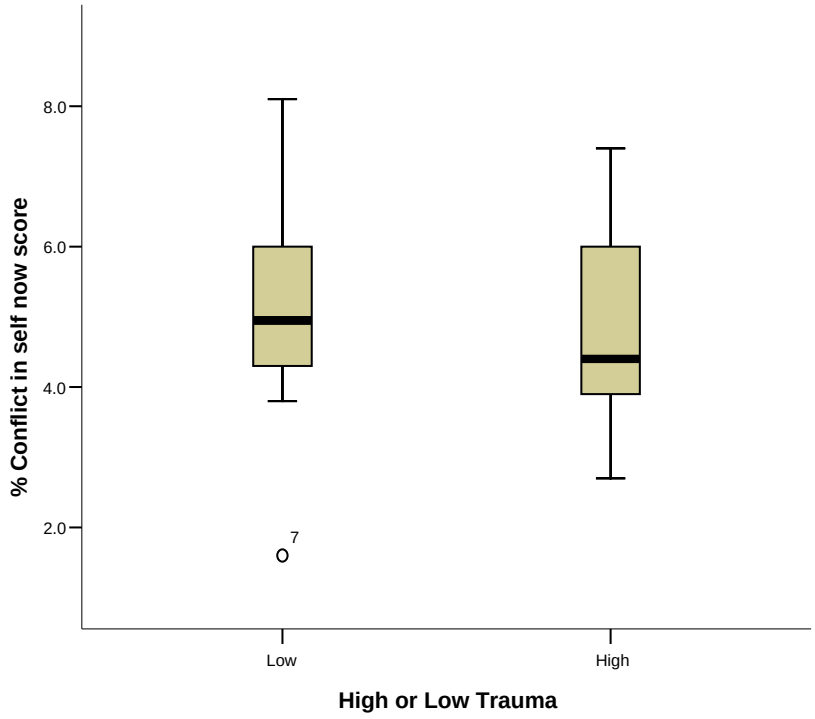
4.5.1 Restatement of Hypothesis 2

Participants who have had psychotic experiences who have also experienced significant traumas in their childhood will have a greater level of conflict concerning their self concept than participants who have had psychotic experiences but no significant childhood traumas.

4.5.2 Testing the hypothesis by dividing the sample into high and low trauma

The procedure for testing this hypothesis was to use the data from the level of conflict within the element 'self now'. The concept of conflict was discussed in Section 2.6.2. The average total percentage conflict in the repertory grids of the whole sample was 37.1% (range 28.1 – 50.1%, s.d. 5.22). The average conflict in the element 'self now' was 5.02% (range 1.6 – 8.1%, s.d. 1.67). The conflict in the 'self now' element related to conflict concerning each individual's self concept. The data is summarised in Table 11, Appendix 14. The distribution of the conflict scores is shown in Figure 8. As Figure 8 shows, although there was considerable overlap between the two groups, the low trauma group tended to have more conflict than the high trauma group. This was the opposite direction to that hypothesised. A Mann-Whitney U test was used to compare the conflict in the two groups. The result indicated that there was no significant difference between the two groups (MWU=49.0, p=.692, 2-tailed) and the corresponding effect size was low (Cohen's d=.0264). Therefore, the result of the comparison of self-conflict between the high and low trauma groups did not support Hypothesis 2.

Figure 8: Box plot of the distribution of conflict in the element 'self-now' for 21 people who had experienced psychosis. The participants were divided into high and low trauma groups, with the high trauma group scoring 'severe' on at least one CTQ scale.

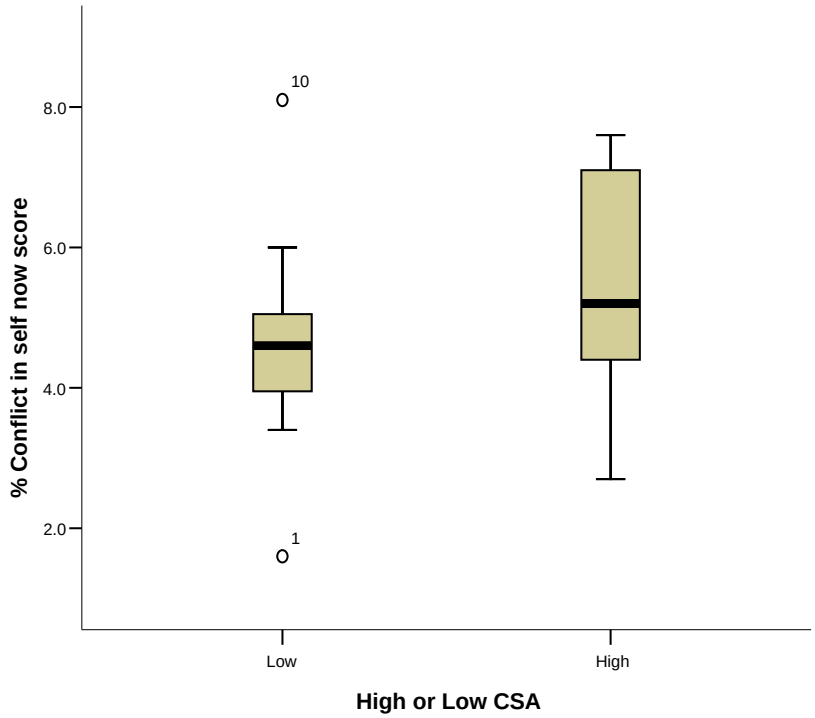


4.5.3 Testing the hypothesis by dividing the sample into high and low CSA

The analysis was repeated with the sample divided according to CSA. The data is summarised in Table 12, Appendix 15. The distribution of the conflict scores is shown in Figure 9. As Figure 9 shows, the high CSA group tended to have more conflict than the low CSA group. A Mann-Whitney U test was used to compare the conflict in the two groups. The result indicated that there was no significant difference at the 5% level between the two groups (MWU=39.0, p=.137, 1-tailed). However, the corresponding effect size was moderate (Cohen's d=.494). Therefore comparison of self-conflict between the high and low CSA groups provided some moderate support for Hypothesis 2 with participants in the high

CSA group having greater conflict in the element ‘self now’ than the low CSA group.

Figure 9: Box plot of the distribution of conflict in the element ‘self-now’ for 21 people who had experienced psychosis. The participants were divided into high and low CSA groups, with the low CSA group scoring ‘none’ on the SAS of the CTQ.



4.6 Test of Hypothesis 3

4.6.1 Restatement of Hypothesis 3

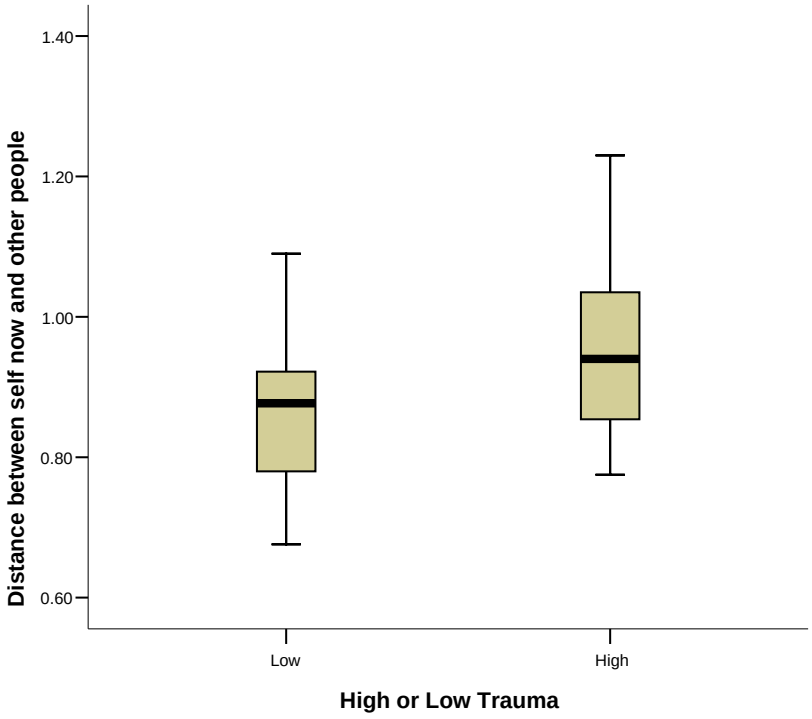
Participants who have had psychotic experiences who have also experienced significant traumas in their childhood will have a greater distance between their concept of self and other people (i.e. experience more social isolation) than

participants who have had psychotic experiences but no significant childhood traumas.

4.6.2 Testing the hypothesis by dividing the sample into high and low trauma

The procedure for testing this hypothesis was to take the data that measures the distance between elements in the repertory grid. The distance of interest was that between the element 'self now' and all elements that represented 'other people' i.e. mother, father, sibling, man you like, man you dislike, woman you like, woman you dislike, spouse or partner. The distance of 'self now' from each of the other elements was added and then divided by eight to give the average distance of 'self now' from 'other people'. The data is summarised in Table 11, Appendix 14 and the distribution of distance scores is presented in Figure 10. The figure shows that the high trauma group tended to have greater distance between 'self now' and 'other people' than the low trauma group, but that there was also some overlap between the two groups. A Mann-Whitney U test was used to compare the average distance between 'self now' and 'other people' in the two groups. The distance scores are standardised and range from 0 to 2. A score of greater than 1 indicates larger distances. The result at the 5% level indicated that there was not a significant difference between the two groups (MWU=34.5, p=.078, 1-tailed). However, the corresponding effect size was large (Cohen's d=.655). Therefore there was some evidence to support Hypothesis 3. Participants in the high trauma group viewed themselves as more unlike other people than participants in the low trauma group.

Figure 10: Box plot of the distribution of average distance between the element 'self-now' and other people elements for 21 participants who had experienced psychosis. The participants were divided into high and low trauma groups, with the high trauma group scoring 'severe' on at least one scale of the CTQ.

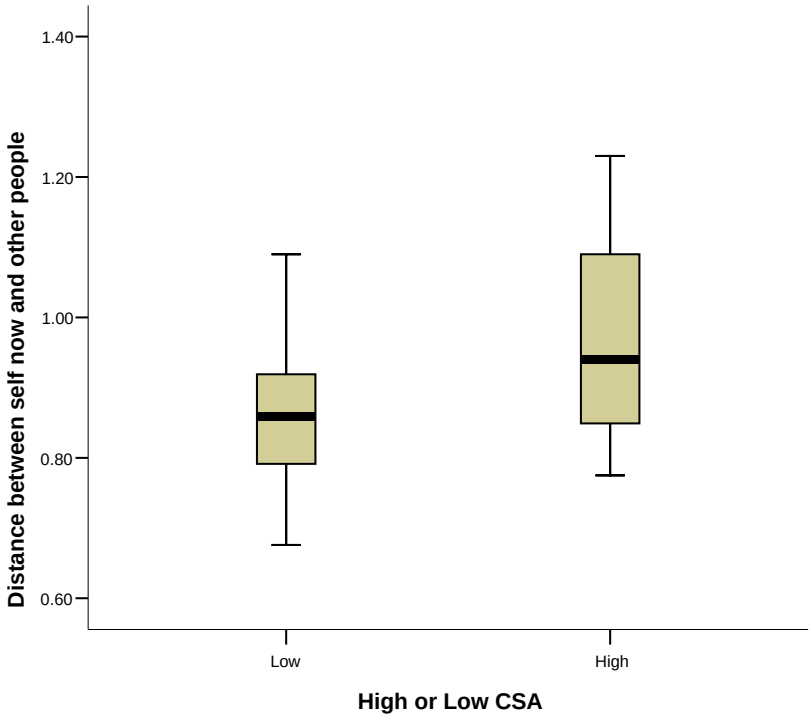


4.6.3 Testing the hypothesis by dividing the sample into high and low CSA

The analysis was repeated with the sample divided according to CSA. The data is summarised in Table 12, Appendix 15 and the distribution of the distance scores is presented in Figure 11. The figure shows that the high CSA group tended to have greater distance between 'self now' and 'other people' than the low CSA group, but that there was also some overlap between the two groups. A Mann-Whitney U test was used to compare the average distance between 'self now' and 'other people' in the two groups. The result at the 5% level indicated

that there was not a significant difference between the two groups (MWU=33.5, p=.068, 1-tailed). However, as in the comparison between high and low trauma, the corresponding effect size was large (Cohen's d=.713). Therefore there was some evidence to support Hypothesis 3. Participants in the high CSA group viewed themselves as more unlike other people than participants in the low CSA group.

Figure 11: Box plot of the distribution of average distance between the element 'self-now' and other people elements for 21 participants who had experienced psychosis. The participants were divided into high and low CSA groups, with the low CSA group scoring 'none' on the SAS of the CTQ.



4.7 Test of Hypothesis 4

4.7.1 Restatement of Hypothesis 4

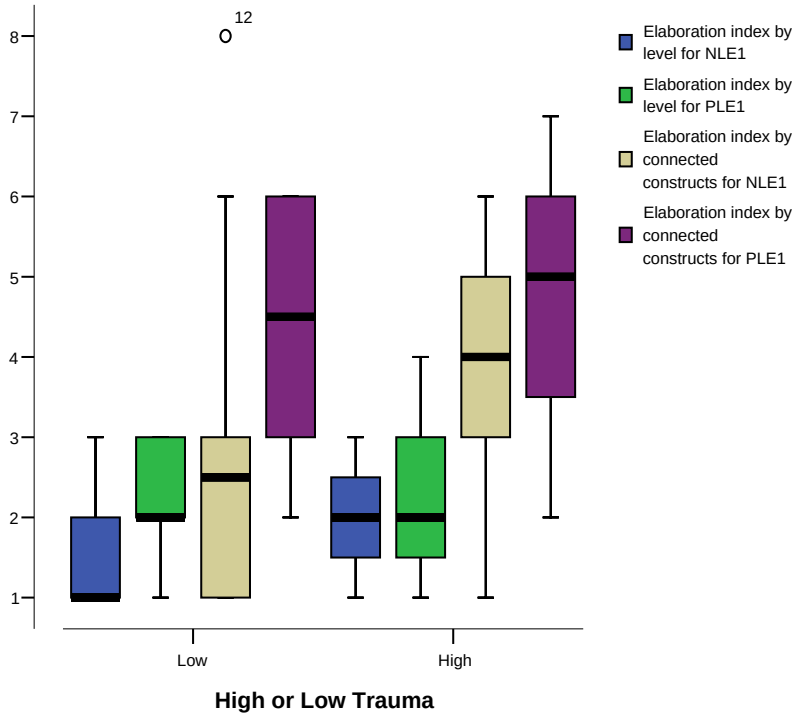
Participants who have had psychotic experiences who have also experienced significant traumas in their childhood will have a more unelaborated view of themselves when they experienced negative life events than participants who have had psychotic experiences but no significant childhood traumas.

4.7.2 Testing the hypothesis by dividing the sample into high and low trauma

It was hypothesised that the high trauma group would have a more unelaborated view of self when they experienced a negative life event in childhood (NLE1) than the low trauma group. Investigation of the elaboration of NLE1 alone could potentially be confounded by individuals who had a general low elaboration for all life events. The most obvious method to control for this confounding affect is to use an Analysis of Covariance (ANCOVA), with 'self experiencing a positive life event in childhood' (PLE1) as a covariate. The distribution of elaboration scores for NLE1 and PLE1 was not normal and so an ANCOVA was not possible. Therefore a simpler investigation of the differences in elaboration of NLE1 and PLE1 was conducted by comparing the difference between the two groups separately for NLE1 and PLE1 on the two measures of elaboration, level and connected constructs.

The distribution of the elaboration indices for NLE1 and PLE1 is presented in Figure 12. The figure shows that the two groups tended to have a similar elaboration by level and connected constructs for PLE1. There was an overlap in the level of elaboration for NLE1, although unexpectedly the high trauma group tended to have more elaborated scores for NLE1 than the low trauma group. On the connected constructs measure of elaboration the high trauma group had higher elaboration scores for NLE1 than the low trauma group.

Figure 12: Box plot of the distribution of scores for the elaboration of NLE1 and PLE1 of 21 participants who had experienced psychosis. The participants were divided into high and low trauma groups, with the high trauma group scoring 'severe' on at least one scale of the CTQ.



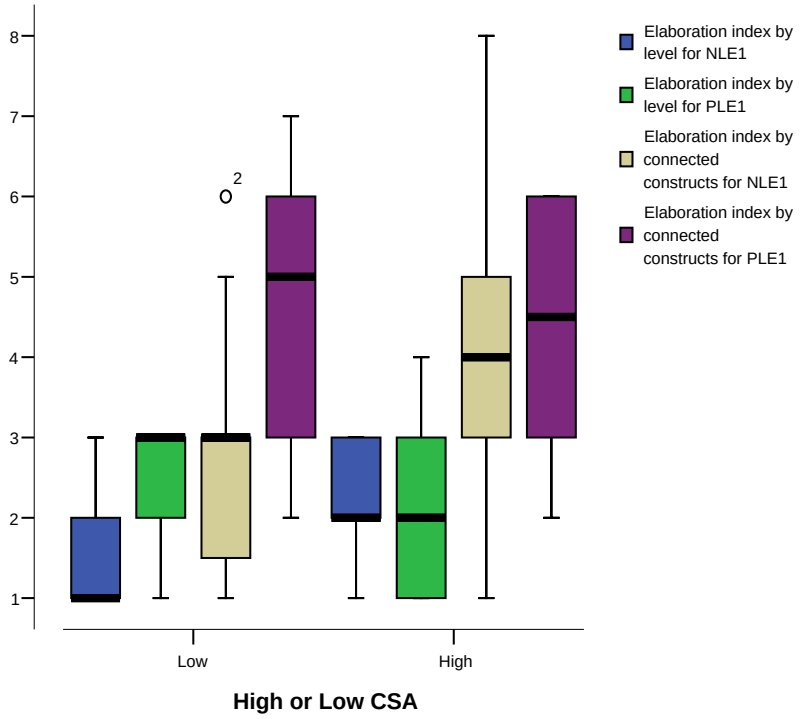
A comparison of the mean scores for the high and low trauma groups on each measure of elaboration for NLE1 and PLE1 with corresponding effect sizes is reported in Table 11, Appendix 14. The elaboration scores in the two groups were compared using a Mann-Whitney U test. The results indicated that there was no significant difference at the 5% level between the two groups for level of PLE1 (MWU=53.0, p=.963, 2-tailed) and constructs connected to PLE1 (MWU=48.5, p=.654, 2-tailed) with corresponding small effect sizes (Cohen's d=.0772 and Cohen's d=.202 respectively). The results for NLE1 indicated no

significant difference at the 5% level between the groups for level of NLE1 (MWU=39.0, p=.237, 2-tailed) and constructs connected to NLE1 (MWU=35.0, p=.161, 2-tailed). However, there were moderate corresponding effect sizes (Cohen's d=.494 for level and Cohen's d=.424 for connected constructs) indicating an effect in the unpredicted direction, with the high trauma group having greater elaboration of NLE1 than the low trauma group.

4.7.3 Testing the hypothesis by dividing the sample into high and low CSA

The analysis was repeated with the sample divided according to CSA. A summary of this data is shown in Table 12, Appendix 15 and the distribution of the elaboration scores is presented in Figure 13. The figure shows that the unexpected greater elaboration for NLE1 than PLE1 is also present when the sample is divided according to CSA. The two groups tended to have a similar elaboration by level and connected constructs for PLE1 as in the previous section. A comparison of the mean scores for the high and low CSA groups on each variable in Figure 13 is reported in Table 12, Appendix 15. The elaboration scores in the two groups were compared using a Mann-Whitney U test. The results indicated that there was no significant difference at the 5% level between the two groups for level of PLE1 (MWU=44.0, p=.416, 2-tailed) and constructs connected to PLE1 (MWU=48.0, p=.630, 2-tailed) with corresponding small effect sizes (Cohen's d=.287 and Cohen's d=.204 respectively). There were results just above the cut-off for significance at the 5% level for NLE1. Comparing the two groups, level of NLE1 (MWU=27.0, p=.051, 2-tailed) and constructs connected to NLE1 (MWU=30.0, p=.078, 2-tailed) both had large corresponding effect sizes (Cohen's d=1.01 and Cohen's d=.810). These results were in the unpredicted direction with the high CSA group having greater elaboration of NLE1 than the low CSA group.

Figure 13: Box plot of the distribution of scores for the difference in elaboration of the positive and negative life events in childhood of 21 participants who had experienced psychosis. The participants were divided into high and low CSA, with the low CSA group scoring 'none' on the SAS of the CTQ.



Two cases will now be presented in greater detail to highlight some of the measures used in this study and how their individual profiles lent support to the hypotheses in this study.

4.8 Case example 1 – a participant who was in the low trauma group and the low CSA group

4.8.1 Background History

The client will be called Polly, although this is not her real name. Her profile fits with the hypothesis that people who have not experienced trauma in childhood have greater self-elaboration. Polly was British and in her early thirties. She was recently divorced and had two young children. She was not taking antipsychotic medication. She had worked in office jobs prior to having her children. Her first contact with mental health services was in summer 2003. She had two acute relapses in her mental health, although she had never been admitted to hospital. Her problems had commenced in spring 2003 when she had an accident. She was shocked when the accident happened and her injury took a few months to heal. Following the accident Polly developed intense feelings of paranoia. She thought that people were plotting to get her and became suspicious of everybody around her, including members of her family. Her feelings of paranoia had come and gone over the last four years, but she had been able to live in the community and look after her children. She reported that she had not experienced paranoid feelings for approximately five months and was now hoping to return to work.

4.8.2 Questionnaire data

Polly scored ‘none’ on the emotional abuse, sexual abuse, emotional neglect and physical neglect scales of the CTQ. She scored ‘low’ on the physical abuse scale of the CTQ. Her most stressful life event in early life was the divorce of her parents. She reported no current symptoms of stress relating to this event. However, she did continue to feel stressed about the accident that had led to her developing psychosis. Polly also reported no current positive symptoms of psychosis, such as hearing voices or delusions. It was easy to develop a rapport

with her during the interview and she did not seem to be suffering from negative symptoms of psychosis.

4.8.3 Structured interview

The elements in Polly's repertory grid were as follows:

1. Father
2. Mother
3. Cousin
4. Self when parents divorced when I was age 8 (NLE1)
5. Self when brother was born, age 6 (PLE1)
6. Boyfriend
7. George Michael (Man I Like)
8. Male friend (Man I Dislike)
9. Female friend (Woman I Like)
10. Female friend (Woman I Dislike)
11. Child
12. Teenager
13. Self now
14. Ideal self
15. Age 29 when had accident (NLE2)
16. Age 22 when on holiday (PLE 2)
17. Self as user of mental health services

The constructs elicited through the triad comparison method described above were as follows:

1. Healthy Living – Unhealthy Living
2. Feisty – Cool and Calm

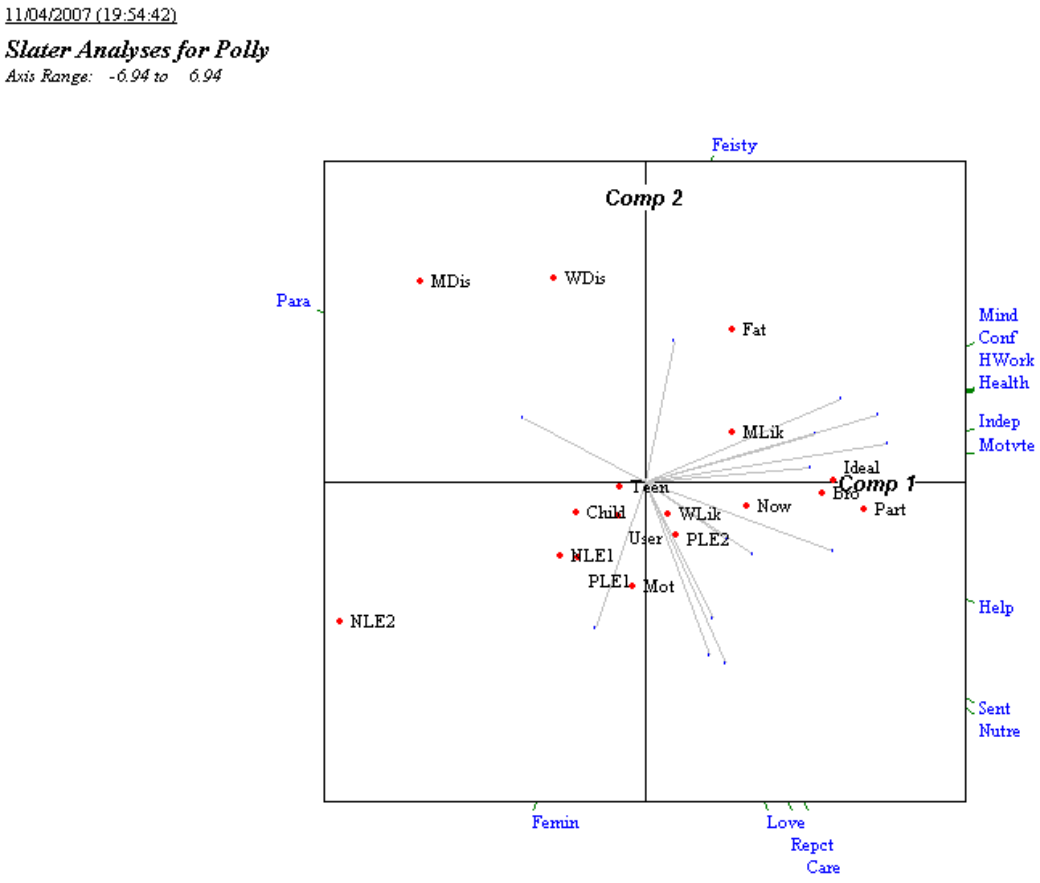
3. Caring – Uncaring
4. Respectful – Disrespectful
5. Hard Working – Lazy
6. Sentimental – Unsentimental
7. Loving – Hateful
8. Nurturing – Un-nurturing
9. Feminine – Butch
10. Motivated – Unmotivated
11. Strong minded – Naive
12. Confident – Weak
13. Paranoid – Not paranoid
14. Helpful – Unhelpful
15. Independent – Relies on others

4.8.4 Idiogrid representation of Polly's repertory grid

The relationship between the elements and the constructs was plotted graphically using the Idiogrid computer programme and is represented in Figure 14. To create the graph the repertory grid was subjected to a Principal-Components Analysis (PCA). The horizontal axis represents the first principal component (PC1) and the vertical axis represents the second principal component (PC2). The elements and constructs are plotted according to their loadings on PC1 and PC2. In the PCA of Polly's repertory grid, PC1 accounted for 44.1% of the variance and PC2 accounted for 22.3% of the variance. When PC1 and PC2 are large it indicates tight construing. Therefore, Polly's grid seemed to indicate a balance between tight and loose construing. The further apart elements and constructs are in the grid, the less alike they are. The distance between the way Polly viewed herself now and the way she viewed herself when she experienced her second negative life event (NLE2) is notable. This was the accident that led to her developing paranoia. It seemed that she had put a great distance between

herself experiencing the accident and the way she saw herself now. The closer to the origin the constructs and elements are, the less extremely they are construed. Construing herself in NLE2 was more extreme than all the other elements. It would seem that despite the extreme effect that NLE2 had on Polly, the distance between herself now and NLE2 had enabled her to move forward in her life. Polly acknowledged this aspect of her graph when it was discussed during feedback. Polly also viewed herself as similar to her ideal self, perhaps another strong indication of how she seemed to be getting her life back on track.

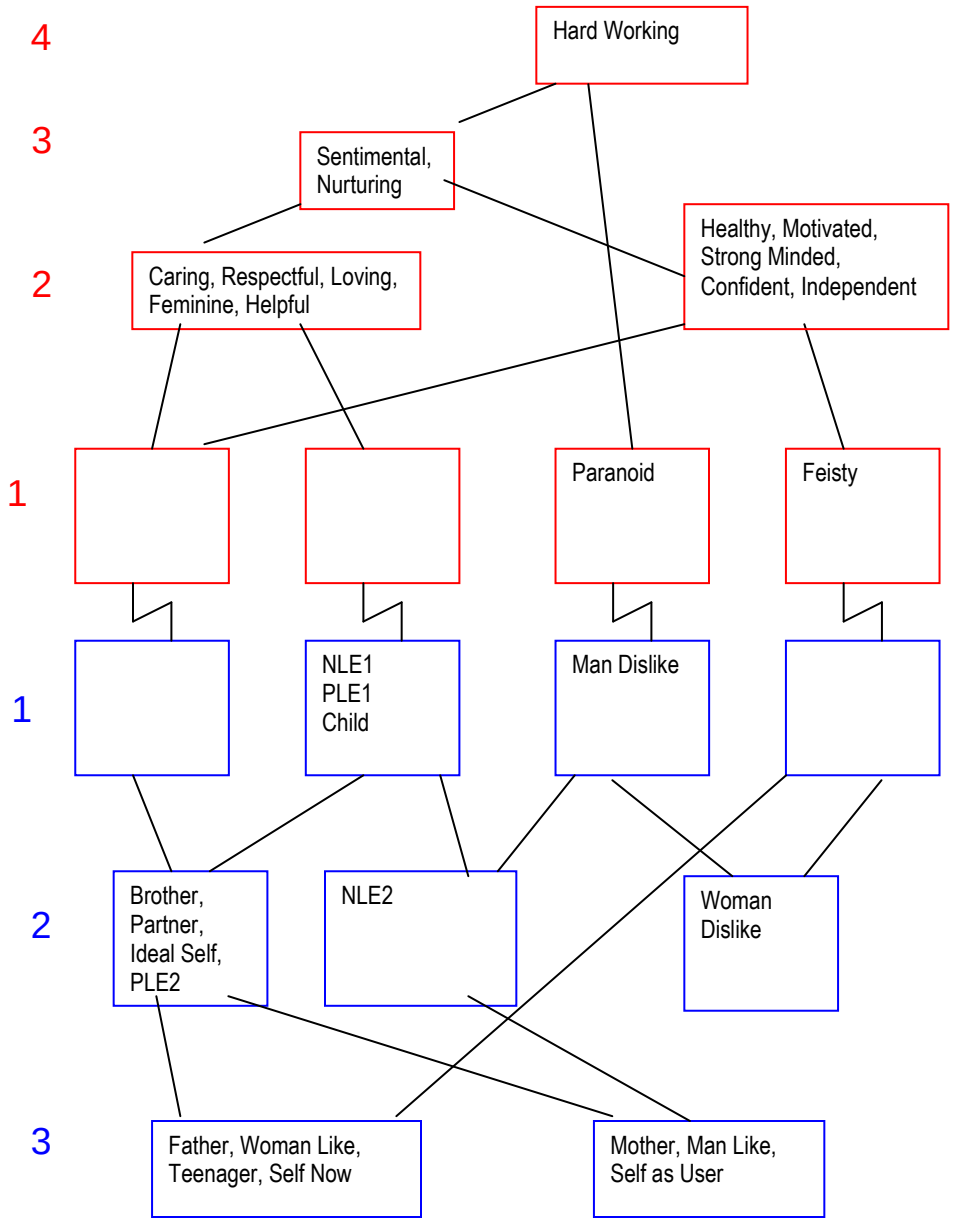
Figure 14: Idiogrid graph of the relationship between Polly's constructs and elements.



4.8.5 HICLAS representation of Polly's repertory grid

To investigate the hierarchical relationship between the constructs and the elements, a HICLAS solution at rank 4 for Polly's repertory grid is shown in Figure 15. The red boxes represent the constructs and the blue boxes the elements. The lines between the boxes indicate how elements and constructs are linked to each other. The numbers represent the level of elaboration. For example, the element 'self now' is at level three. This is the highest level of elaboration in Polly's element hierarchy. Tracing the lines from the box containing 'self now' up to the red boxes that contain constructs shows that 'self now' is connected to five boxes i.e. the index of elaboration, by constructs connected to elements, is five. Both of these measures suggest that Polly had a richly defined self concept, in line with the hypothesis that a well elaborated self concept serves a protective function. It is interesting to note that NLE2 was also elaborated. Furthermore, 'self now' did not overarch NLE2, perhaps indicating that this event did not define the way she viewed herself in the present. This is in agreement with the evidence in Figure 14. Naturally Figures 14 and 15 contain a number of discussion points in terms of Polly's individual profile. Unfortunately space constraints do not allow for further discussion. However, her example has hopefully enhanced understanding of the methodology and rationale for the hypotheses.

Figure 15: HICLAS representation of relationship between elements (blue boxes) and constructs (red boxes) for Polly's repertory grid. Elaboration levels are noted at the side of the figure, with higher numbers representing more elaboration.



4.9 Case Example 2 – a participant who was in the high trauma group and high CSA group

4.9.1 Background History

For the purpose of this case example, the client will be called Susan, although this is not her real name. Her profile fits with the hypothesis that people who have experienced trauma in childhood have a less elaborate view of themselves. Susan was British, in her late forties and married with three children. She had a part time job, although she reported that her low mood made going to work and being motivated to complete daily life tasks difficult. Susan had been sexually abused by her uncle between the ages of 8 to 10. Her first contact with mental health services was 20 years ago. She had been hearing voices on and off for the past 20 years and said that apart from her family she was fairly socially isolated.

4.9.2 Questionnaire data

Susan scored ‘severe’ on all five scales of the CTQ. She reported experiencing symptoms of intrusion, avoidance and hyperarousal in the previous 7 days that were related to her traumatic abuse when aged 8. She reported hearing voices in the past 7 days, but had not experienced delusions. It was easy to develop a rapport with her during the interview and she did not seem to be suffering from negative symptoms of psychosis.

4.9.3 Structured interview

The elements in Susan’s repertory grid were as follows:

1. Father
2. Mother
3. Brother

4. Self when sexually abused by uncle, age 8 (NLE1)
5. Self when gave birth to daughter, age 16 (PLE1)
6. Husband
7. David Ginola (Man I Like)
8. Uncle (Man I Dislike)
9. Older Sister (Woman I Like)
10. Sister in law (Woman I Dislike)
11. Child
12. Teenager
13. Self now
14. Ideal self
15. Age 16 when brothers reacted to daughter (NLE2)
16. Got married age 22 (PLE2)
17. Self as user of mental health services

The constructs elicited through the triad comparison method described above were as follows:

1. Domineering – Placid
2. Outcast – Being no. 1
3. Can survive without family – Need Family
4. Protective – Un-protective
5. Loyal – Un-loyal
6. Real people – Dream people
7. Nice – Hateful
8. Like helping people – Un-helpful
9. Likeable – Annoying
10. Scared – Not scared
11. Insecure – Not insecure

12. Not normal – Normal
13. Worthless – Not worthless
14. Optimistic – Not optimistic
15. Happy – Unhappy

4.9.4 Idiogrid representation of Susan's repertory grid

The relationship between the elements and the constructs was plotted graphically using the Idiogrid computer programme and is represented in Figure 16. The figure was plotted using PCA in the same way as Figure 14. PC1 for Susan was 42.6% and PC2 was 23.7%, therefore the balance between tight and loose construing was similar to Polly's construct system. In contrast to Polly's grid plot above, the way that Susan viewed herself at present was similar to the way she was in her NLE2 and similar to the way she viewed herself as a child. This was pertinent given that Susan was sexually abused during her childhood, although her experience of abuse in NLE1 was not as close to 'self now' as 'self as a child'. Another notable contrast between Susan and Polly was that Susan had a greater distance between herself now and her ideal self, corroborated by her report that she suffered from depression.

4.9.5 HICLAS representation of Susan's repertory grid

To investigate the hierarchical relationship between the constructs and the elements, a HICLAS solution at rank 4 for Susan's repertory grid is shown in Figure 17. The figure shows that the elaboration of the element 'self now' is at level 2 for Susan, lower than that for Polly. This would fit with Hypothesis 1, that traumatic life events in childhood could be a cause of a less self-elaboration. However, tracing the lines from the box containing 'self now' up to the red boxes that contain constructs shows that 'self now' was connected to five boxes. This means that the second measure of self-elaboration, constructs connected to 'self now', was the same for both Polly and Susan. One final point of interest in the

HICLAS structure is that for Susan NLE1, her experience of sexual abuse from her uncle, overarched her 'self now'. NLE1 was also at the highest level of elaboration. This is not as predicted from previous trauma research but an example in line with the unexpected findings from the test of hypothesis 4.

Figure 16: Idiogrid graph of the relationship between Susan's constructs and elements.

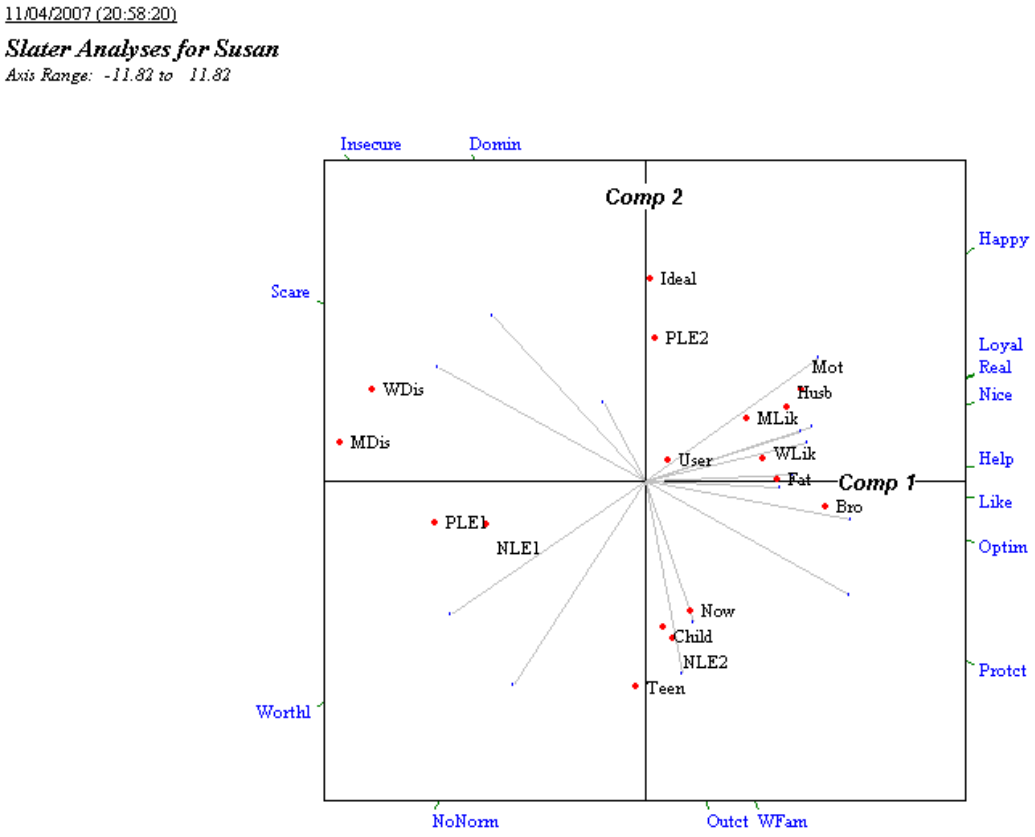
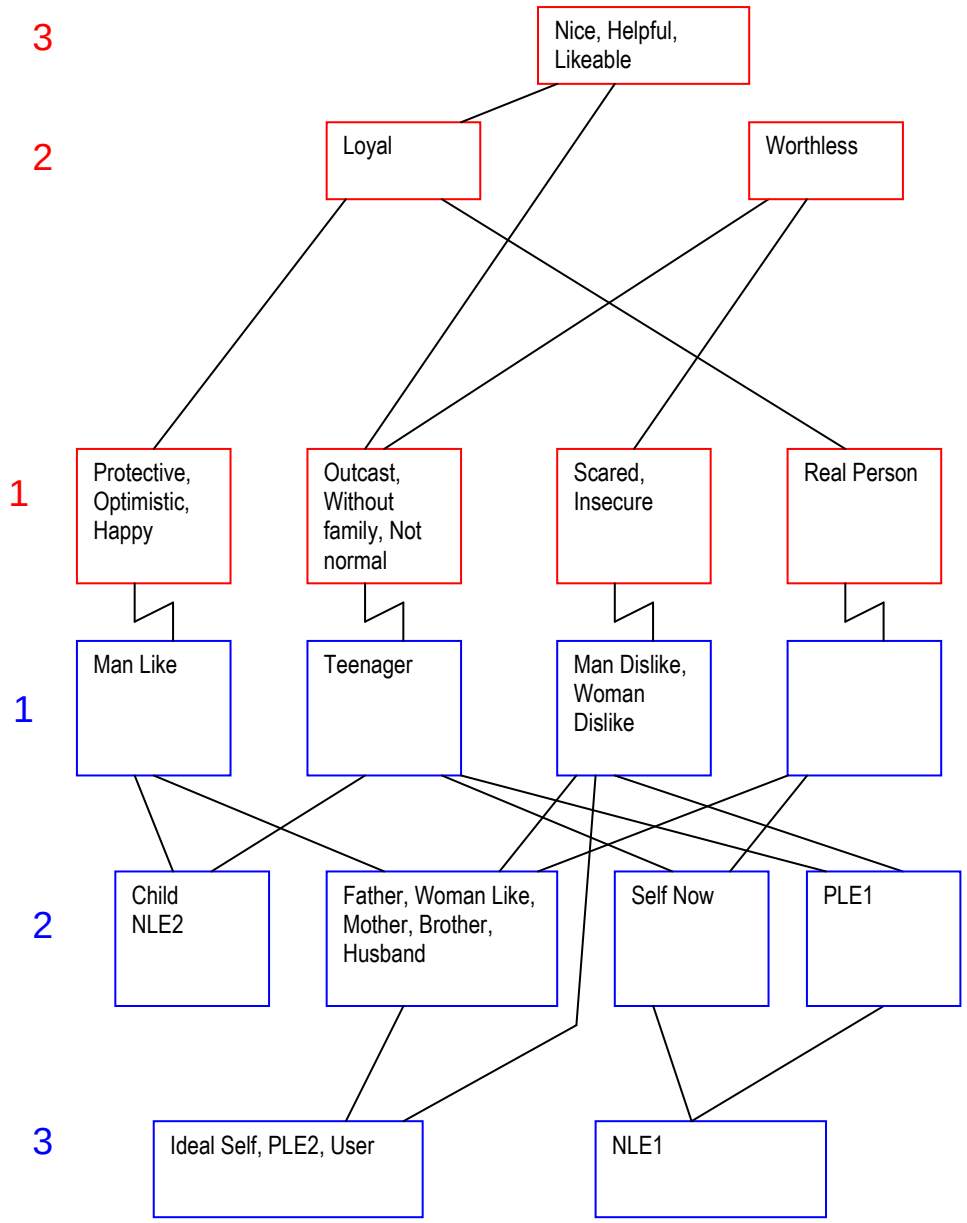


Figure 17: HICLAS representation of relationship between elements (blue boxes) and constructs (red boxes) for Susan's repertory grid. Elaboration level is noted at the side of the figure, with higher numbers representing more elaboration.



5. DISCUSSION

The section will commence with a summary of the characteristics of the sample and main findings. Each hypothesis will then be reviewed and the findings will be linked to previous research in trauma and psychosis. After the limitations of the study have been discussed the section will finish with suggestions for future research.

5.1 Characteristics of the sample

Given that the sample was chosen opportunistically, there was an even balance of male and female participants in this study who had similar age ranges and number of hospital admissions. The females in the sample had been using mental health services longer than the males. There was no significant difference between males and females in childhood trauma, later life trauma and current symptoms of trauma. It also appeared that positive and negative symptoms of psychosis were low and evenly distributed within the sample.

5.1.1 Comparison between the low / high trauma and low / high CSA groups

The sample was first divided according to high and low trauma defined by experience of severe trauma measured by the CTQ. This division created a high trauma group that had a greater exposure to emotional, physical and sexual abuse and physical neglect. There was no significant difference between the high and low trauma groups in their current symptoms of psychosis. After comparisons on the basis of high and low trauma, the sample was then divided by high and low CSA, as measured by the SAS of the CTQ. This division created a high CSA group that had a greater exposure to sexual, emotional and physical abuse, although emotional and physical neglect experienced by the high CSA group was

similar to that experienced by the low CSA group. There was no significant difference between the high and low CSA groups in their current symptoms of psychosis. Regardless of how the sample was divided, the resulting groups had no significant demographic difference in terms of gender, age, number of hospital admissions and number of years using mental health services. Therefore, although females were likely to have spent longer using mental health services, they were evenly distributed between the two groups.

5.1.2 Main findings

The main findings of this study are summarised in Table 11.

Table 11: Summary of the findings from each hypothesis tested in this study

Hypothesis	High / Low Trauma Group Comparison	High / Low CSA Group Comparison
Significant trauma in childhood will result in lower self-elaboration	No support by level of element 'self now' – small effect size Some support by constructs connected to element 'self now' – medium effect size	Good support by level of element 'self now' – large effect size Good support by constructs connected to element 'self now' – large effect size
Significant trauma in childhood will result in greater conflict in the element 'self now'	No support – low effect size	Some support – medium effect size

Significant trauma in childhood will result in a greater distance between 'self now' and 'other people'	Good support – large effect size	Good support – large effect size
A negative life event in childhood will be less elaborated in people who experienced significant trauma in childhood	No support. However moderate support for reverse direction - negative life events are more elaborated following significant trauma	No support. However good support for reverse direction - negative life events are more elaborated following significant trauma

These findings have to be interpreted within the limitations of the study which are discussed in Section 5.7. In the next section, the findings from Hypothesis 1 will be discussed in relation to previous research on self-elaboration in psychosis.

5.2 Elaboration of the self concept and links to previous research

The main purpose of this study was to examine whether there was a relationship between trauma and self construction in people who had psychotic experiences. A cross-sectional design would be unable to conclude with certainty that trauma had changed the self and other constructions. There is always a possibility that they had been changed by the experience of psychosis. However, previous research does provide evidence that childhood trauma has a causal relationship with psychosis. Therefore, the results of this study will not indicate causality, but

they may be interpreted in the light of previous research where this has been demonstrated. The approach used was to recruit a sample where all the participants had experienced psychosis and then attempt to vary the trauma in the sample. When the sample was divided by experience of trauma, there was no significant difference in current psychosis as measured by the PSYRATS and negative scale of the PANSS between the two groups. It was hoped that this study design, where trauma was varied between two groups, would provide more insight into how trauma may have had an effect on psychosis. Further interpretation of these findings and limitations of the experimental design are now discussed with regard to Hypothesis 1.

5.2.1 Does trauma affect one's self-concept and lead to vulnerability to developing psychosis in later life?

It was hypothesised that severe childhood traumas would lead to a more unelaborated self concept in later life. The results of this study suggest that the experience of trauma, measured by emotional, physical and sexual abuse, does seem to affect self-elaboration. However, the experience of sexual abuse seems to be the most important type of abuse that affects self-elaboration. When the sample was divided according to CSA, trauma had a stronger effect on self-elaboration. The results therefore provide some support for the theory that childhood trauma and particularly sexual abuse may lead to vulnerability to develop psychosis in later life. The vulnerability may be mediated by an ability to construct an elaborate self-concept. This follows from previous findings that people who have a diagnosis of schizophrenia have lower self elaboration than people with other diagnoses and non-psychiatric controls (e.g. Robey et al., 1989). However, these studies have not controlled for the experience of trauma. This study adds to previous research by suggesting that one reason for the lower self-elaboration in diagnosis of schizophrenia may have been because the 'schizophrenia' group had greater previous exposure to trauma. As noted by

Rosenberg and Gara (1985) life events that disrupted one's identity would threaten one's sense of reality and continuity. CSA is a severely traumatic experience that can have an effect on one's self-construction in later life (e.g. Erbes and Harter, 2002). Therefore it stands to reason that CSA and childhood trauma in general may prevent individuals from developing an elaborate self-concept, increasing vulnerability to develop psychosis in later life. Although trauma may directly affect self-constructions, it is also possible that trauma has an indirect effect by preventing social relationships and encounters with other people. This will be discussed further in Section 5.4.

In the sample of 21 participants chosen opportunistically, only two (11%) scored 'none' on all 5 scales of the CTQ and eight (44%) scored in the severe range on at least one scale. These results were qualified by the 'denial' scale on the CTQ. The denial scale indicated that only 1 participant in the low trauma group was likely to have under-reported trauma. This also fits with previous research suggesting that under-reporting of trauma is more likely to be a problem in psychosis than over-reporting (Fergusson et al., 2000). The high prevalence of trauma within this sample adds weight to previous research that childhood trauma is likely to lead to the development of psychosis in later life (e.g. Read et al. 2005). Although this study focused on childhood trauma, two participants reported no experience of trauma in childhood, but still had experience of psychosis in later life. It is likely that stress in adult life contributed to their experience of psychosis. One of them had developed paranoid feelings following the stressful break-up of a long-term relationship with his partner in adult life. The second had been working as a paramedic and had to attend a terrorist attack. After this event, he had developed paranoid feelings that the terrorists were trying to get after him. Other limitations to the interpretation from the results that low-elaboration caused by trauma led to psychosis will now be discussed.

5.2.2 Limitations to the suggestion that trauma led to lower self-elaboration in this sample

Employing a cross-sectional design in this study does not eliminate the possibility that some people who had experienced trauma may have developed psychosis in later life with trauma having no causal effect on their psychosis. For example, drug taking may have led to psychosis independently of any effects of trauma. In this study efforts were made to control for this possibility by not recruiting any participants with a primary diagnosis of drug and alcohol abuse. However, this may not be accurately recorded for a number of reasons e.g. non-disclosure by participants.

Another limitation is that if low self-elaboration is hypothesised to have been causal in psychosis, it does not necessarily mean that this low elaboration was caused by trauma. It is possible that the experience of psychosis had led to low self-elaboration, rather than previous trauma. Therefore an improvement to this study would be to have a non-psychiatric control group which was also subdivided into high and low trauma groups. It is hypothesised that a non-psychosis control group would have higher levels of self-elaboration, but that the subgroup of high trauma in the control group would have lower self-elaboration than the subgroup of low trauma. Other helpful comparison groups would include examining the self-elaboration of people who have experienced CSA who do not go on to develop psychosis. It is possible that people who had experienced significant trauma but had also been able to develop an elaborated self-concept would have been able to avoid psychosis in later life.

It appears in this study that some people who had experienced severe childhood trauma had still been able to develop elaborated self-constructs. It may have been helpful in addition to measuring childhood trauma to measure what emotional and social support participants received in childhood. For example, if high trauma participants had also received therapy this may have enabled them to develop elaborate constructions of self and other people. This is a variable that

would need to be controlled in future research. It is possible that greater conflict in the self-concept is one measure of how low elaboration has an effect. This will be explored in the next section.

5.3 Conflict within the self concept

The hypothesis concerning conflict made use of a relatively new measure of conflict developed by Bell (2004) discussed in Section 2.6.2. Given this measure is new, previous research using the measure is limited, especially within psychosis research. Therefore, the hypothesis was constructed around a general notion that conflict within a repertory grid is a sign of inconsistency in construing that indicates cognitive dissonance (Winter, Bell and Watson, submitted). From the results of this study it appears that conflict in the self-concept is greater when an individual has experienced CSA. Bell (2004a) has noted that tight construing is likely to be a feature of grids where there is a low percentage of conflict. In contrast, loose construing is likely to be a feature of grids where there is a high percentage of conflict. He has therefore suggested that the conflict measure used in this study may be a new alternative tool to measures tight and loose construing in repertory grids. It is possible that conflict within the self-concept may have some explanatory value when it is considered within the context of low self-elaboration. It is possible that conflict in the self-concept prevents an individual from being able to develop an elaborated self-concept. Further research measuring the self-conflict in other samples would provide insight into if this is unique to psychosis, or whether it may be important in other mental health problems too. On a general note, in this study, the average total percentage of conflict within the repertory grids of the participants was 37.1% (range 28.1 – 50.1%). This is similar to Bell et al. (submitted) who found an average percentage conflict of 38% in their study of 247 patients with a range of diagnoses who

completed repertory grids. Therefore, although the level of conflict was in the same range as previous research, the conflict in the self-concept may be particularly relevant to how trauma may be causal in psychosis.

5.4 Difference between self and other people

The results of this study support the hypothesis that following severe childhood trauma people are likely to see themselves as different to other people. It is not possible to ascertain from this result whether viewing oneself as different to other people is a cause of psychosis or a consequence of psychosis. However, if trauma does cause a greater distance between self and other people it may provide some explanation for the social isolation experienced by people who have psychosis. For example, Harrop and Trower (2003) have researched the construction of self in psychosis and hypothesize that a process of gradual social isolation affects one's self-constructions and leads to the development of psychosis. The results from this study support a role for social isolation in psychosis, suggesting that trauma may contribute to social isolation.

5.5 Elaboration of negative life events

When the sample was divided into groups on the basis of trauma, it was hypothesised that regardless of the trauma experienced, people who had experienced greater trauma would have unelaborated constructions of themselves when they experienced childhood trauma (NLE1). This follows work by Sewell (1996) and Sewell et al. (1996), who found that people suffering from PTSD had unelaborated constructions of their traumatic experiences. Unelaborated trauma is hypothesised to be a cause of symptoms of PTSD, such

as flashbacks of the memory of the traumatic event. Although the current sample did not have a diagnosis of PTSD, it was hypothesised that NLE1 would be unelaborated and hence more prone to creating disturbance in high trauma groups. The finding that the higher trauma groups had greater elaboration of NLE1 was unexpected. Possible explanations for this result and limitations of the interpretation of this finding will now be discussed.

5.5.1 What does this result tell us about how trauma is processed in psychosis?

The unexpected findings may reflect a difference in the response to trauma in PTSD and the response to trauma in psychosis. Given the results of this study, perhaps when trauma is elaborated it is more likely to contribute to the symptom profile found in psychosis, whereas when it is unelaborated it is more likely to be a cause of PTSD-like symptoms. It is interesting that high trauma groups tended to have greater elaboration of NLE1, because one possible result could have been that trauma was unelaborated in both high and low trauma groups. It is possible that greater elaboration in the high trauma group reflects the fact that trauma is an important part of the identity of participants in the high trauma groups. The sample as a whole had low trauma symptoms as measured by the IES-R and so may not have been expected to have low elaboration of NLE1. Perhaps having an elaborated NLE1 led to it becoming a dominant theme that is more likely to maintain symptoms of psychosis? Further investigation of the traumatic experiences of people who have psychosis would be helpful in this regard. For example, a qualitative study might capture more readily how trauma is integrated in people who have psychosis and whether this happens in a different way to people who have PTSD.

5.5.2 Are limitations to the study more likely to explain the result?

One problem with the interpretation of this finding is that participants may not always have been thinking about their primary experience of abuse when they completed their elaboration of NLE1. Although they were instructed to think about themselves experiencing their most traumatic life event, some people may not have regarded their abuse as their most traumatic childhood experience. Furthermore, given the stressful nature of abuse, some people may have chosen not to think about their abuse when completing the structured interview. This may have confounded the results and perhaps led to NLE1 being more elaborated than expected. If this study was repeated in the future it would benefit from participants being encouraged to think specifically about an occasion when they experienced abuse when thinking about NLE1.

Another limitation when relating findings from previous research to the current study is that the type of trauma experienced may be important. For example, Sewell et al. (1996) found their results in a sample of Vietnam veterans who experienced trauma in combat. This is a different type of experience to CSA and perhaps CSA is more likely to be elaborated than combat trauma. Future research comparing the elaboration of different types of trauma would provide further insight into whether the type of trauma experienced affects elaboration and is discussed further in Section 5.7.3.

5.6 The findings from this study and links to therapy in psychosis

Repertory grids have value in informing therapy and their use as an assessment tool can enhance therapy (e.g. Pollock and Kear-Colwell, 1994). Participants who received feedback on the grids reported that the process made sense and seemed to fit with their views of self and other people. The results add support to the hypothesis that trauma may have an impact on self-elaboration in people who

have psychosis. This highlights the importance of conducting trauma assessments as routine practice when working with people who have psychosis. This supports previous work (e.g. Read, 1997, Read and Ross, 2003) advocating this approach. For many years, the dominant view within treatment for psychosis was that medication was the treatment of choice for what was viewed as an organic problem (e.g. Bentall, 2003). The results from this study do not dispute the benefit that some clients may gain from receiving medication. However, they also hopefully emphasize the importance of discussing trauma and how clients construct representations of themselves and other people. An emphasis on the importance of trauma assessment has featured in recent work on CBT for psychosis by Callcott and Turkington (2006) and Smith et al. (2006). Both these authors highlight the importance of including the experience of trauma in formulating a client's psychosis. Arguably repertory grids similar to those used in this study could inform this formulation. In particular, repertory grids in this study can inform formulations by facilitating a consideration of self and other constructions following trauma. The results presented here also suggest that because people who have had traumatic experiences tend to view themselves as less like other people, group therapy may be useful to reduce this self-other distance. This is because the opportunity to engage with people who have similar problems and experiences can be validating (e.g. Alexander and Follette, 1987) and there is also evidence that group therapy can reduce the self-other distance (Winter, 2003).

5.7 General limitations of the study

There were a number of limitations to this study that may have had a confounding effect on the results. One important limitation is that repeated analysis on the same data set increased the alpha error, or likelihood of rejecting the null

hypothesis when in fact it is true. The study did not reach the level of power required. The total number of participants required was 25 and the final sample size of 21 was short of this target. In order to facilitate interpretation of all statistical tests, effect sizes were reported. However, an obvious improvement to this study would be to use a larger sample. With a larger sample the variables under investigation may have been more likely to be normally distributed. This would have allowed the use of more powerful parametric tests, rather than the non-parametric tests used in this study. The time limit to complete the study and difficulties inherent in recruiting participants who have had psychotic experiences contributed to the lower number of participants than expected. However, even though the study was under-power, this may reflect the reality of conducting research within the NHS. It is arguable that research of this nature is still valuable, given its contribution to our understanding of psychosis. Further research may benefit from consideration of the limitations to this study discussed below.

5.7.1 Diagnosis and current well-being of the sample

The sample in this study did not all have a diagnosis of schizophrenia, perhaps making them a more heterogeneous sample than those used in previous self-elaboration studies. It may be reasonable to suggest that an individual's psychological and social functioning has deteriorated sufficiently at some point in their lifetime to warrant receiving the diagnosis of schizophrenia. It is possible that the participants in this study may have been in better mental health than those in previous studies, because not all of them had received the diagnosis of schizophrenia. The level of positive and negative symptoms in the sample was low and it is possible that a sample that only included participants with the schizophrenia diagnosis may have had higher levels of positive and negative symptoms. In this study a number of participants had recovered from their previous psychosis and made steps towards recovery and rebuilding their lives.

This may be atypical of samples used in previous elaboration research. It is possible that rehabilitation had enabled participants in both the high and low trauma groups to develop an elaborate view of themselves.

5.7.2 Validity of the high and low trauma groups

The groups compared in this study were created by scores on scales of the CTQ. These decisions were arbitrary, but informed by the properties of the CTQ. However, creating two groups in this manner does not appear to have featured in published research. In this study there was a large overlap in trauma profiles between the two trauma groups. This raises the issue of validity of the groups. Any type of trauma may have an effect on one's self-elaboration. If this is true then a better experimental design would have been to recruit a 'no trauma' group that scored 'none' on all the CTQ trauma scales. This group would then be compared to a 'trauma' group including any participant scoring above 'none' on any scale of the CTQ. However, given the prevalence of trauma within the mental health population, recruiting a 'no-trauma' group may be difficult. An alternative to a group design would be to have a large enough sample to do a correlational analysis between the CTQ scale scores and the grid variables that were investigated in this study. This would have removed any confounding effects of creating a high and low trauma group.

5.7.3 Duration and type of trauma experienced

Traumatic events in this study may have reflected one single incident, or they may have reflected a number of incidents. A related issue is that the trauma may have been relatively brief, or it may have taken place over a longer period of time. The duration of the trauma may also reflect the type of trauma experienced, for example abuse in childhood may be more likely to reflect a long duration in contrast to a serious accident that occurred in later life. It is possible that childhood abuse with a long duration and intensity has a more profound effect on

one's construction of self than one isolated experience of abuse. An improvement to this study would be to record more accurately the type and duration of trauma that an individual experienced and perhaps adapt the repertory grids used. For example, grids composed only of life events that covered an individual's entire life span may have been better equipped to answer the question of how specific life events affect an individual's construct system. This may have enabled a more detailed investigation of individuals' construing across their lifespan than the current designed allowed.

One further confounding effect in the study is the occurrence of later life traumas. For example, a number of participants who did not have traumatic childhoods had experienced traumatic events in later life. Although it was not possible to control for the effect of later life trauma, using the SLES-L did enable later life trauma to be recorded. It appears that in the current sample only two participants reported no childhood trauma on the CTQ, but did report significant stress in later life that may have had a causal influence on their developing psychosis. It is also possible that for some people who experienced childhood abuse this did not have as much impact on their construct system as later life trauma. One of the benefits of the repertory grid method is that it enables the investigator to see whether early or later life trauma is likely to have been more influential in an individual's psychosis. Future research would benefit from more detailed comparisons of early and later life trauma.

5.7.4 Understanding the task requirements

It is possible that despite efforts to fully explain the repertory grids and the self elements, some participants may have completed the grids without fully understanding the concept of 'self at a different time in my life'. For some participants the self elements had to be explained a number of times before they understood what they meant. It is possible that they did not understand following explanation, but continued anyway, for example in order to please the

researcher. Understanding the procedure in this study could have been improved by using the 'free response' format grids used in the original self-elaboration studies, e.g. Gara et al. (1989). In the free response format, there are longer lists of constructs, often in the region of 35 per grid. This is in contrast to the 15 emergent-implicit pole constructs in the repertory grids from this study. The free response format removes the need to understand the triadic comparison method used in this study. Participants are simply asked for constructs that can be used to describe people. However, it would still require understanding the concept of 'self when I was experiencing an event', which could have been problematic for some people.

One further point about the ability of the participants to understand the repertory grid method is that it may be that the current study was too complicated because it had three different types of elements – self, self experiencing an event, and other people. Other studies investigating self-elaboration have used a much simpler format, for example only using 'self' grids. Therefore an improvement to this study might be to use repertory girds that only use one type of element. However, although simpler repertory grids may have been less confusing, there is some evidence that using repertory grids that contain different types of elements are still as valid as putting the elements in different grids (Curtin and Leitner, 1992).

5.8 Participants who dropped out from the study

There were seven participants who consented to take part in the study but then dropped out during the interview. More people under a section of the Mental Health Act 1983 dropped out than completed the study. It is possible that people under section may have been more unwell, but unclear what impact they could have had on the results. These participants will now be discussed.

5.8.1 Comprehension of the measures and motivation to take part

Two participants were unable to understand the instructions for the interview. This may have been because they were too unwell or did not have the concentration skills required to take part in the study. When the interview was simplified to simply 'thinking about ways to describe people', they were still unable to generate constructs and then use them to rate the elements in the grid. This raises an issue of how the complexity of this study may have acted as a selection process with participants who did not have the cognitive skills to take part being excluded from the study. A related issue to having sufficient cognitive ability to take part is also having the motivation and ability to concentrate long enough to take part. One participant who dropped out reported that they did not have the motivation to spend time considering the 'complicated instructions' which had to be followed in order to take part in the study. Two participants who consented to take part became unwell and were unable to make any further contribution to the study. This again reflects the nature of the study design, setting selection requirements that may not accurately reflect the whole population of people who have psychosis. It is possible that people who have experienced severe trauma in childhood or later life may be more likely to be unwell and have been unlikely to take part in this study. In addition, when people are unwell this may also be at a time when their elaboration of self and others is most severely impaired.

5.8.2 Delusional beliefs that may be related to poor elaboration of self and others may prevent people from taking part in the study

One participant felt that the process of rating people on repertory grids was 'too judgemental'. Expressing views about other people, whether they were positive or negative, was so uncomfortable for this person that they could not take part in the study. This person's views may reflect a problem with their elaboration of self

and other people. During the interview they noted that their thoughts were so chaotic that they did not go out much or socialise with other members of the group home where they lived. This may be an example where the subject under investigation is also a limiting factor to the study. If people are impaired in their elaboration of self and others, as this person may have been, then they may find any discussion about themselves and other people too difficult. To begin to engage in discussion of this nature with people who have unelaborated views of themselves and see themselves as less like other people may require additional rapport building and engagement prior to being interviewed that would not fit the time constraints of this study.

5.8.3 Cultural perspectives on view of self

To take part in the study it has to be accepted that the way you view yourself today and the way you view yourself in previous life events are two distinguishable phenomena. One participant was unable to complete the interview because they did not accept this view. They thought that 'self now' and 'self in previous life event' were the same thing. One possible explanation for their views may be a cognitive deficit that prevents the flexible thinking required to imagine oneself experiencing an event in the past. An alternative explanation is that non-Western cultures may have different views on self and that the findings of this study may be limited to people from Western cultures who have experienced psychosis.

5.9 Suggestions for future research

Suggestions for future research include studying separate client groups such as people who have experienced a specific type of trauma, for example childhood emotional abuse, people who have had specific symptoms of psychosis, for

example hearing voices, and investigating a sample composed only of first episode psychosis. By collecting data from these separate client groups, a more accurate picture of the construing in different types of trauma and different types of psychosis would be established. It is possible that different types of trauma may produce different types of symptoms, or they may be very similar. It would also be useful to investigate the construct systems of people who experienced childhood trauma who have not developed psychosis in later life. A hypothesis for a study including this group might be that people who have had a number of positive life experiences or greater family support following trauma are more able to develop elaborate self-constructs and thereby reduced their likelihood of later life psychosis.

This study design is still left with the question of causation present in all cross sectional designs. It is hard to draw firm conclusions as to whether trauma or psychosis has caused the construing observed and the results have to be interpreted in the light of previous research findings. Longitudinal studies using repertory grids may help answer questions including how an individual's construing may change as their mental health changes, or whether there are more permanent effects that might be the result of either trauma or psychosis. Finally a qualitative analysis of the constructs that were generated in this study, as in Harter et al. (2004), would facilitate greater understanding of the construct systems of people who have psychosis.

5.10 Conclusion

A number of hypotheses were tested in this study. The main finding was that there was some evidence to suggest that traumatic life events can have a detrimental affect on the development of an elaborate self-concept. This was supported by the finding that participants who had experienced greater sexual

abuse in childhood were more likely to have a less elaborate self-concept in later life. However, a role for other types of childhood trauma including physical and emotional abuse leading to a less elaborate self-concept was not supported. There was also some evidence to support the hypothesis that participants who had experienced severe trauma in childhood would have greater conflict in their self-concept. Again, this effect was only present when sexual abuse during childhood was considered as the main trauma variable, rather than any type of trauma during childhood.

Although the previous two findings were dependent on type of trauma, this did not appear to be the case when considering how people viewed themselves in relation to other people. There was good evidence to suggest that participants who had experienced more severe trauma in childhood saw themselves as less like other people. The study also produced an unexpected result in that negative life events from childhood were more elaborated in people who had experienced severe trauma in childhood than those who had not experienced severe trauma in childhood. This was unexpected, because previous research on trauma has found traumatic life events to be unelaborated

The results were discussed in relation to what they may be able to tell us about the role of trauma and self-elaboration in the development of psychosis in later life. A number of limitations to the study were also discussed and their influence on the results was considered. It seemed that repertory grids had a number of uses in the assessment of life events with people who have experienced psychosis that was useful at an individual level for both professionals and clients alike. In general this study highlighted the importance of a consideration of trauma histories with people who have experienced psychosis which may offer alternative views to a purely biological cause for psychosis.

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7. APPENDICES

Appendix 1: Patient Information Sheet

PATIENT INFORMATION SHEET – PART 1

How have traumatic life experiences in people who have psychosis affected the way that they view themselves and other people?

You are being invited to take part in a research study. Before you decide whether to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Talk to others about the study if you wish.

- Part 1 tells you the purpose of this study and what will happen to you if you take part.
- Part 2 gives you more detailed information about the conduct of the study.

Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Thank you for reading this information sheet.

What is the purpose of the study?

The research study is being carried out by Tim Sporle, trainee clinical psychologist. It forms part of the research requirements for his clinical psychology training.

The study aims to add to the growing amount of research suggesting that traumatic life experiences may influence the development of psychosis. In particular it will consider how traumatic life experiences may have affected the way that people who have psychosis view themselves and other people. It is hoped that by examining how people who have psychosis view themselves and their traumatic experiences that we may gain understanding of how trauma may lead to the development of psychosis. The study will be completed and written up by April 2007.

Why have I been chosen?

You have been approached to take part in this study because you may have experienced symptoms of psychosis in the past or are currently experiencing symptoms of psychosis. A total number of 26 participants will be approached to take part in the study.

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

What will happen to me if I take part?
If you agree to take part, with your permission, Tim Sporle may need to look at your medical records. He will arrange to meet with you to complete five questionnaires and an interview. The questionnaires will take about an hour to complete. The interview will last approximately one hour. The whole procedure will not take longer than two hours and can be conducted over two sessions if this is more suitable.

The questionnaires will ask you about traumatic life experiences that you may have encountered. They will also ask you about symptoms of psychosis that you may have experienced. In the interview you will be asked to think about yourself in a number of different situations and also think about your relationship to other people. By thinking about yourself and other people the interviewer will help you to complete a 'repertory grid'. This repertory grid will be used to gain an understanding of the links between the ways that you view yourself and other people and how this has been influenced by your life experiences.

It is possible that because the questionnaires and interview will ask you to think about traumatic life events that they may cause you to feel distressed. If you become distressed at any time appropriate support will be offered to you from either Tim Sporle or your keyworker. For this reason, you will be asked to consent to your keyworker being contacted if you become distressed during the interview.

You will also be offered the opportunity to have a feedback meeting to discuss the interview and results with Tim Sporle. If you decide that you would like to have a feedback meeting, you will be asked if you agree to the meeting being recorded. If you agree to this, a new consent form will be provided for you to consider. However, if you decide that you do not want to have the meeting recorded, this will not effect your entitlement to a feedback meeting.

Any recorded material from feedback meetings will be stored digitally on a computer. With your permission, some of your comments during the meeting could potentially be used anonymously in future publications.

Will my taking part in the study be kept confidential?
Yes. All the information about your participation in this study will be kept confidential. The details are included in Part 2.

Contact Details
For further information please contact:

Tim Sporle
Trainee Clinical Psychologist
XXXX
Tel: XXXX

This completes Part 1 of the Information Sheet.
If the information in Part 1 has interested you and you are considering participation, please continue to read the additional information in Part 2 before making any decision.

PATIENT INFORMATION SHEET – PART 2

What will happen if I don't want to carry on with the study?
As noted above, you are free to withdraw from the study at any time and we will destroy any information that identifies you, but we will need to use the data collected up to your withdrawal.

What if there is a problem?
If you have a concern about any aspect of this study, you should ask to speak with Tim Sporle who will do his best to answer your questions (tel.: XXXX). If you remain unhappy and wish to complain formally, you can do this through the NHS Complaints Procedure. The contact is the Patient Advice and Liaison Service and their number is XXXX.

In the event that something does go wrong and you are harmed during the research study there are no special compensation arrangements. If you are harmed and this is due to someone's negligence then you may have grounds for a legal action for compensation against XXXX, but you may have to pay your legal costs. The normal National Health Service complaints mechanisms will still be available to you.

Will my taking part in this study be kept confidential?
All information which is collected about you during the course of the research will be kept strictly confidential. Any information about you which leaves the hospital will have your name and address removed so that you cannot be recognised from it.

With your consent, your GP will be contacted to advise them that you have agreed to take part in this study. However, information about you collected during the study will not be reported to your GP.

What will happen to the results of the study?
It is hoped that when the study is completed it will be written up and published in a psychological journal. No participants will be identifiable in written or published material. Participants who agree to have their feedback meeting recorded may have anonymous quotes from their feedback used in the study write up.

Who has reviewed the study?
This study was given a favourable ethical opinion for conduct in the NHS by the West Essex LREC.

You will be given a copy of this information sheet and a signed consent form to keep. Thank you for considering taking part in this study and taking the time to read this information sheet.

Tim Sporle
Trainee Clinical Psychologist

Appendix 2: Consent Form

CONSENT FORM

Title of Project: How have traumatic life experiences in people who have psychosis affected the way that they view themselves and other people?

Name of Researcher: Tim Sporle

Please initial box

1. I confirm that I have read and understand the information sheet dated 13th June 2006 (version 2) 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 my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected. ☐

3. I understand that relevant sections of any of my medical notes and data collected during the study may be looked at by responsible individuals from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records. ☐

4. I agree to my keyworker being informed if I become distressed during the study. ☐

5. I agree to my GP being informed of my participation in the study. ☐

6. I agree to take part in the above study. ☐

_____	_____	_____
Name of Patient	Date	Signature
_____	_____	_____
Name of Person taking consent (If different from researcher)	Date	Signature
_____	_____	_____
Researcher	Date	Signature

When completed, one copy for patient, one for researcher site file, one (original) to be kept in medical notes

Appendix 3: Ethical Approval

West Essex Local Research Ethics Committee

LIST OF SITES WITH A FAVOURABLE ETHICAL OPINION

For all studies requiring site-specific assessment, this form is issued by the main REC to the Chief Investigator and sponsor with the favourable opinion letter and following subsequent notifications from site assessors. For issue 2 onwards, all sites with a favourable opinion are listed, adding the new sites approved.

REC reference number:	06/Q0301/35	**Issue number:**	2	**Date of issue:**	10 July 2006
Chief Investigator:	Mr Timothy Sporle				
Full title of study:	An exploratory study to investigate the construction of self and others in people who have psychosis who have experienced traumatic life events				

This study was given a favourable ethical opinion by West Essex Local Research Ethics Committee on 22 June 2006. The favourable opinion is extended to each of the sites listed below. The research may commence at each NHS site when management approval from the relevant NHS care organisation has been confirmed.

Principal Investigator	*Post*	*Research site*	*Site assessor*	*Date of favourable opinion for this site*	*Notes* [1]
Mr T Sporle	Trainee Clinical Psychologist	Derwent Centre, Princess Alexandra Hospital	West Essex Local Research Ethics Committee	22/06/2006	
Mr T Sporle	Trainee Clinical Psychologist	St Ann's Hospital	Barnet, Enfield & Haringey Local Research Ethics Committee	10/07/2006	

Approved by the Chair on behalf of the REC:

..... (Signature of ~~Chair~~/Administrator)
(delete as applicable)

..... (Name)

[1] *The notes column may be used by the main REC to record the early closure or withdrawal of a site (where notified by the Chief Investigator or sponsor), the suspension of termination of the favourable opinion for an individual site, or any other relevant development. The date should be recorded.*

Appendix 4: Childhood Trauma Questionnaire

CTQ

Name: _____

Age: _____ Sex: _____

Ready Score® Answer Document

When I was growing up ...	Never True	Rarely True	Sometimes True	Often True	Very Often True
1. I didn't have enough to eat.	●	●	●	●	●
2. I knew that there was someone to take care of me and protect me.	●	●	●	●	●
3. People in my family called me things like "stupid," "lazy," or "ugly."	●	●	●	●	●
4. My parents were too drunk or high to take care of the family.	●	●	●	●	●
5. There was someone in my family who helped me feel that I was important or special.	●	●	●	●	●
6. I had to wear dirty clothes.	●	●	●	●	●
7. I felt loved.	●	●	●	●	●
8. I thought that my parents wished I had never been born.	●	●	●	●	●
9. I got hit so hard by someone in my family that I had to see a doctor or go to the hospital.	●	●	●	●	●
10. There was nothing I wanted to change about my family.	●	●	●	●	●
11. People in my family hit me so hard that it left me with bruises or marks.	●	●	●	●	●
12. I was punished with a belt, a board, a cord, or some other hard object.	●	●	●	●	●
13. People in my family looked out for each other.	●	●	●	●	●
14. People in my family said hurtful or insulting things to me.	●	●	●	●	●
15. I believe that I was physically abused.	●	●	●	●	●
16. I had the perfect childhood.	●	●	●	●	●
17. I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor, or doctor.	●	●	●	●	●
18. I felt that someone in my family hated me.	●	●	●	●	●
19. People in my family felt close to each other.	●	●	●	●	●
20. Someone tried to touch me in a sexual way, or tried to make me touch them.	●	●	●	●	●
21. Someone threatened to hurt me or tell lies about me unless I did something sexual with them.	●	●	●	●	●
22. I had the best family in the world.	●	●	●	●	●
23. Someone tried to make me do sexual things or watch sexual things.	●	●	●	●	●
24. Someone molested me.	●	●	●	●	●
25. I believe that I was emotionally abused.	●	●	●	●	●
26. There was someone to take me to the doctor if I needed it.	●	●	●	●	●
27. I believe that I was sexually abused.	●	●	●	●	●
28. My family was a source of strength and support.	●	●	●	●	●

Appendix 5: Stressful Life Experiences Scale – Long Version

Stressful Life Experiences Screening—Long Form

We are interested in learning about your experiences. Below is a list of experiences that some people have found stressful. Please fill in the number that best represents how much the following statements describe your experiences. You will need to use two scales, one for how well the statement describes your experiences and one for how stressful you found this experience. If you are not sure of your answer, just give us your best guess.

Describes your Experience (use in Describes Experiences Column)

0	1	2	3	4	5	6	7	8	9	10
I did not experience	a little like like my experiences				somewhat like my experiences					exactly like my experiences

Stressfulness of Experience (Use in Stressfulness Then and Stressfulness Now Column)

0	1	2	3	4	5	6	7	8	9	10
Not at all stressful	not very stressful				somewhat stressful					extremely stressful

Describes Experience	Life Experience	Stressfulness Then	Stressfulness Now
	I have witnessed or experienced a natural disaster like a hurricane or earthquake.		
	I have witnessed or experienced a human made disaster like a plane crash or industrial disaster.		
	I have witnessed or experienced a serious accident or injury.		
	I have witnessed or experienced chemical or radiation exposure happening to me, a close friend or a family member.		
	I have witnessed or experienced a life threatening illness happening to me, a close friend or a family member.		
	I have witnessed or experienced the death of my spouse or child.		
	I have witnessed or experienced the death of a close friend or family member (other than my spouse or child).		
	I or a close friend or family member has been kidnapped or taken hostage.		
	I or a close friend or family member has been the victim of a terrorist attack or torture.		
	I have been involved in combat or a war or lived in a war affected area.		
	I have seen or handled dead bodies other than at a funeral.		

Stressful Life Experiences Screening / 321

	I have felt responsible for the serious injury or death of another person.		
	I have witnessed or been attacked with a weapon other than in combat or family setting.		
	As a child/teen I was hit, spanked, choked or pushed hard enough to cause injury.		
	As an adult, I was hit, choked or pushed hard enough to cause injury.		
	As an adult or child, I have witnessed someone else being choked, hit, spanked, or pushed hard enough to cause injury.		
	As a child/teen I was forced to have unwanted sexual contact.		
	As an adult I was forced to have unwanted sexual contact.		
	As a child or adult I have witnessed someone else being forced to have unwanted sexual contact.		
	I have witnessed or experienced an extremely stressful event not already mentioned. Please Explain:		

Scoring for SLES

For Dichotomous (Categorical) Data

Experience Subscale

if score =0, category=0 (did not experience)

if score >0, category=1 (did experience at some level stressful)

Stress Then or Stress Now Subscale

if score =0, category=0 (did not experience)

if score >0, category=1 (did experience at some level stressful)

For Continuous Data

Experience Subscale

sum all items for total exposure score

Stress Then or Stress Now Subscale

sum all items for total perceived stress score

NOTE: Contact the authors for preliminary norms.

Appendix 6: Impact of Event Scale – Revised

The Impact of Event Scale – Revised (Weiss & Marmar, 1997)

Below is a list of difficulties people sometimes have after stressful life events. Please read each item, and then indicate how distressing each difficulty has been for you DURING THE PAST SEVEN DAYS with respect to _____

How much were you distressed or bothered by these difficulties?

	Not at all	A Little Bit	Moderately	Quite a Bit	Extremely
Any reminder brought back feelings about it	0	1	2	3	4
I had trouble staying asleep	0	1	2	3	4
Other things kept making me think about it	0	1	2	3	4
I felt irritable and angry	0	1	2	3	4
I avoided letting myself get upset when I thought about it or was reminded of it	0	1	2	3	4
I thought about it when I didn't mean to	0	1	2	3	4
I felt as if it hadn't happened or wasn't real	0	1	2	3	4
I stayed away from reminders about it	0	1	2	3	4
Pictures about it popped into my mind	0	1	2	3	4
I was jumpy and easily startled	0	1	2	3	4
I tried not to think about it	0	1	2	3	4
I was aware that I still had a lot of feelings about it, but I didn't deal with them	0	1	2	3	4
My feelings about it were kind of numb	0	1	2	3	4
I found myself acting or feeling as though I was back at that time	0	1	2	3	4
I had trouble falling asleep	0	1	2	3	4
I had waves of strong feelings about it	0	1	2	3	4
I tried to remove it from my memory	0	1	2	3	4
I had trouble concentrating	0	1	2	3	4
Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart	0	1	2	3	4
I had dreams about it	0	1	2	3	4
I felt watchful or on-guard	0	1	2	3	4
I tried not to talk about it	0	1	2	3	4

Appendix 7: Negative Scale of the Positive and Negative Syndromes Scale

Positive and Negative Syndrome Scale
Kay, Fiszbein & Opler (1987)

Client Name: Date:

Negative Scale

The seven items of the negative scale are assessed by social interaction during the course of the interview. Therefore, it is necessary to engage in some conversation prior to the assessment commencing to assess lack of spontaneity, flow of conversation and rapport.

The abstract thinking item is assessed by asking the client about the following similarities and proverbs:

Say the following:

"I'm going to say a pair of words and I'd like you to tell me in what important way they are alike. Let's start with the words…"

1. Apple and Banana _____
2. Tiger and Elephant _____
3. Rose and Tulip _____
4. Hilltop and Valley _____

"I'm going to say some proverbs that you may have heard before and I'd like you to tell me what they mean"

1. Carrying a chip on your shoulder _____

   _____
2. One man's food is another man's poison_____

   _____
3. The grass always looks greener on the other side _____

_____

4. A rolling stone gathers no moss _____

_____

Scoring Guide Summary – Consult manual for detailed scoring information

1 = Absent 2 = Minimal 3 = Mild 4 = Moderate 5 = Moderate Severe 6 = Severe 7 = Extreme

Blunted Affect
Diminished emotional responsiveness as characterised by a reduction in facial expression, modulation of feelings and communicative gestures. Basis for rating: Observation of physical manifestations of affective tone and emotional responsiveness during the course of the interview. ☐

Emotional Withdrawal
Lack of interest in, involvement with and affective commitment to life's events. Basis for rating: Reports of functioning from primary care workers or family and observation of interpersonal behaviour during the course of the interview. ☐

Poor Rapport
Lack of interpersonal empathy, openness in conversation and sense of closeness, interest, or involvement with the interviewer. This is evidenced by interpersonal distancing and reduced verbal and nonverbal communication. Basis for rating: Interpersonal behaviour during the course of the interview. ☐

Passive / Apathetic Social Withdrawal
Diminished interest and initiative in social interactions due to passivity, apathy, energy or avolition. This leads to reduced interpersonal involvements and neglect of daily activities. ☐

Difficulty in Abstract Thinking
Impairment in the use of the abstract-symbolic mode of thinking, as evidenced by difficulty in classification, forming generalisations and proceeding beyond concrete or egocentric thinking in problem-solving tasks. Basis for rating: Responses to questions on similarities and proverb interpretation and use of concrete vs. abstract mode during the course of the interview. ☐

Lack of Spontaneity and Flow of Conversation ☐

Reduction in the normal flow of communication associated with apathy, avolition, defensiveness or cognitive deficit. This is manifested by diminished fluidity and productivity of the verbal-interactional process. Basis for rating: Cognitive-verbal processes observed during the course of the interview.

Stereotyped Thinking

Decreased fluidity, spontaneity and flexibility of thinking, as evidenced in rigid, repetitious or barren thought content. Basis for rating: Cognitive-verbal processes during the course of the interview.

Appendix 8: Psychotic Symptom Rating Scales

Psychotic Symptom Rating Scales (PSYRATS)
G. Haddock, J. McCarron, N. Tarrier & E.B. Faragher (1999)

Part A: Auditory Hallucinations

1. Frequency

Voices not present or present less than once a week	0
Voices occur for at least once a week	1
Voices occur at least once a day	2
Voices occur at least once an hour	3
Voices occur continuously or almost continuously i.e. stop for only a few seconds or minutes	4

2. Duration

Voices not present	0
Voices last for a few seconds, fleeting voices	1
Voices last for several minutes	2
Voices last for at least one hour	3
Voices last for hours at a time	4

3. Location

No voices present	0
Voices sound like they are inside head only	1
Voices outside the head, but close to ears or head. Voices inside the head may also be present	2
Voices sound like they are inside or close to ears and outside head away from ears	3
Voices sound like they are from outside the head only	4

4. Loudness

Voices not present	0
Quieter than own voice, whispers	1
About same loudness as own voice	2
Louder than own voice	3
Extremely loud, shouting	4

5. Beliefs about origin of voices

Voices not present	0
Believes voices to be solely internally generated and related to self	1
Holds less than 50% conviction that voices originate from external causes	2
Holds greater than 50% conviction that voices originate from external causes	3
Believes that voices are solely due to external causes (100%) conviction	4

6. Amount of negative content of voices

No unpleasant content	0
Occasional unpleasant content (less than 10%)	1
Minority of voice content is unpleasant or negative (less than 50%)	2
Majority of voice content is unpleasant or negative (greater than 50%)	3
All of voice content is unpleasant or negative	4

7. Degree of negative content

Not unpleasant or negative	0
Some degree of negative content, but not personal comments relating to self or family e.g. swear words or comments not directed to self e.g. 'the milkman's ugly'	1
Personal verbal abuse, comments on behaviour e.g. 'shouldn't do that or say that'	2
Personal verbal abuse relating to self-concept e.g. 'you're lazy, ugly, mad, perverted'	3
Personal threats to self e.g. threats to harm self or family, extreme instructions or commands to harm self or others	4

8. Amount of distress

Voices not distressing at all	0
Voices occasionally distressing, majority not distressing (less than 10%)	1
Minority of voices distressing (less than 50%)	2
Majority of voices distressing, minority not distressing (greater than 50%)	3
Voices always distressing	4

9. Intensity of distress

Voices not distressing at all	0
Voices slightly distressing	1
Voices are distressing to a moderate degree	2
Voices are very distressing, although subject could feel worse	3
Voices are extremely distressing, feel the worst he / she could possibly feel	4

Continues overleaf

10. Disruption to life caused by voices

No disruption to life, able to maintain social and family relationships (if present)	0
Voices causes minimal amount of disruption to life e.g. interferes with concentration although able to maintain daytime activity and social and family relationships and be able to maintain independent living without support	1
Voices cause moderate amount of disruption to life causing some disturbance to daytime activity and / or family or social activities. The subject is not in hospital although they may live in supported accommodation or receive additional help with daily living skills	2
Voices cause severe disruption to life so that hospitalisation is usually necessary. The subject is able to maintain some daily activities, self-care and relationships while in hospital. The patient may also be in supported accommodation but experiencing severe disruption of life in terms of activities, daily living skills and / or relationships	3
Voices cause complete disruption of daily life requiring hospitalisation. The patient is unable to maintain any daily activities and social relationships. Self-care is also severely disrupted	4

11. Controllability of voices

Subject believes they can have control over the voices and can always bring on or dismiss them at will	0
Subject believes they can have some control over the voices on the majority of occasions	1
Subject believes they can have some control over their voices approximately half of the time	2
Subject believes they can have some control over their voices but only occasionally. The majority of the time the subject experiences voices which are uncontrollable	3
Subject has no control over when the voices occur and cannot dismiss or bring them on at all	4

Part B: Delusions

1. Amount of preoccupation with delusions

No delusions, or delusions which the subject thinks about less than once a week	0
Subject thinks about beliefs at least once a week	1
Subject thinks about beliefs at least once a day	2
Subject thinks about beliefs at least once an hour	3
Subject thinks about delusions continuously or almost continuously	4

2. Duration of preoccupation with delusions

No delusions	0
Thoughts about beliefs last for a few seconds, fleeting thoughts	1
Thoughts about delusions last for several minutes	2
Thoughts about delusions last for at least one hour	3
Thoughts about delusions usually last for hours at a time	4

3. Conviction

No conviction at all	0
Very little conviction in reality of beliefs (less than 10%)	1
Some doubts relating to conviction in beliefs, between 10 – 49%	2
Conviction in beliefs is very strong, between 50 – 99%	3
Conviction is 100%	4

4. Amount of distress

Beliefs never cause distress	0
Beliefs cause distress on the minority of occasions	1
Beliefs cause distress on less than 50% of occasions	2
Beliefs cause distress on the majority of occasions when they occur between 50 – 99% of time	3
Beliefs always cause distress when they occur	4

5. Intensity of distress

No distress	0
Beliefs cause slight distress	1
Beliefs cause moderate distress	2
Beliefs cause marked distress	3
Beliefs cause extreme distress, could not be worse	4

6. Disruption to life caused by beliefs

No disruption to life, able to maintain independent living with no problems in daily living skills. Able to maintain social and family relationships (if present)	0
Beliefs cause minimal amount of disruption to life e.g. interferes with concentration although able to maintain daytime activity and social and family relationships and able to maintain independent living without support	1
Beliefs cause moderate amount of disruption to life causing some disturbance to daytime activity and / or family or social activities. The subject is not in hospital although may live in supported accommodation or receive additional help with daily living skills	2
Beliefs cause severe disruption to life so that hospitalisation is usually necessary. The patient is able to maintain some daily activities, self-care and relationships while in hospital. The patient may also be in supported	3

accommodation but experiencing severe disruption of life in terms of activities, daily living skills and / or relationships	
Beliefs cause complete disruption of daily life requiring hospitalisation. The patient is unable to maintain any daily activities and social relationships. Self-care is also severely disrupted	4

Appendix 9: Example of Polly's completed repertory grid

To provide an illustration of a completed repertory grid, the data collected from the client named Polly (not her real name) is presented in this Appendix. The completed grid, composed of constructs and elements, has been reproduced on the next page. The elements form the columns of Table 4, beginning with the element 'Father' and finishing with the element 'Service User'. The constructs form the rows of the table, beginning with the construct 'Healthy Living – Unhealthy Living' and finishing with the construct 'Independent – Relies on Others'.

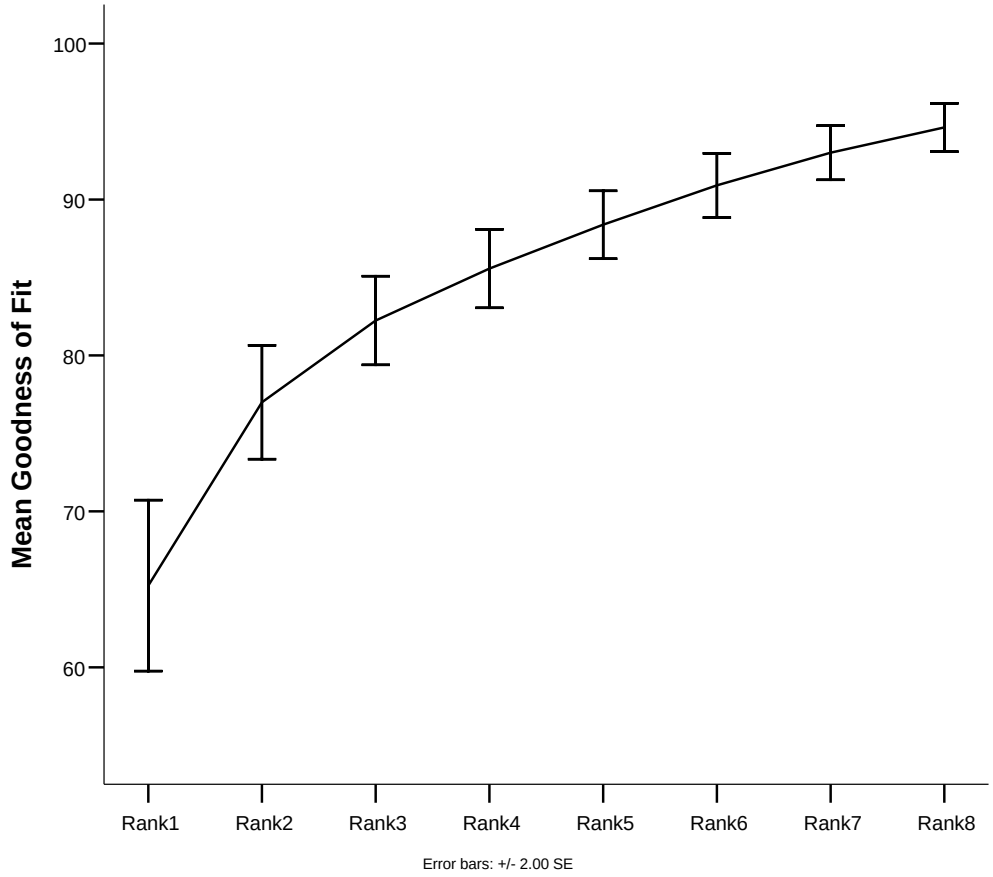
The elements and constructs were obtained using the procedure described in the Method, Section 3.6. Briefly, once the elements had been established, the constructs were generated one at a time by a comparison of three elements. Each element was then rated on the new construct as soon as it was created. Polly's elements and constructs are described more fully and the abbreviations explained in the Results, Section 4.8. However, some discussion of Table 4 now follows. For example, Polly rated her Father as '5' on the construct 'Healthy Living – Unhealthy Living'. This indicates that she viewed him as more representative of 'Healthy Living' than 'Unhealthy Living'. In contrast, she rated her Mother as '2' on the same construct, indicating that she viewed her Mother as more representative of 'Unhealthy Living' than 'Healthy Living'. Another interesting comparison for Polly, given her history of paranoia, was the way that she rated elements on the construct 'Paranoid – Not Paranoid'. For example, she rated herself as experiencing Negative Life Event 2 (NLE 2) as '6', indicating the extreme of 'Paranoid'. However, she rated the element 'Self Now' as a '3', indicating that she viewed herself at present to be much less paranoid than the accident that led to her developing psychosis.

Table 4: Polly's Completed Repertory Grid

Elements:	FATHER	MOTHER	BROTHER	NLE 1	PLE 1	PARTNER	MAN LIKE	MAN DIS	WO LIKE	WO DIS	CHILD	TEEN	SELF NOW	IDEAL	NLE 2	PLE 2	USER	
Rate this pole of construct as **6**																		Rate this pole of construct as **1**
Healthy Living	5	2	4	4	3	6	4	4	5	4	4	5	6	6	3	6	5	Unhealthy Living
Feisty	4	2	2	3	2	2	3	3	4	6	3	4	5	3	1	3	2	Cool & Calm
Caring	4	6	6	5	5	5	5	2	5	3	4	5	5	4	5	4	4	Uncaring
Respectful	3	5	4	5	4	6	3	2	5	2	4	4	5	6	5	5	6	Dis - respectful
Hard Working	6	4	6	4	5	6	6	4	5	4	5	5	5	6	2	4	5	Lazy
Sentimental	4	6	5	4	5	5	5	2	5	4	4	5	5	4	3	5	3	Un sentimental
Loving	4	6	5	5	5	5	5	2	5	3	5	5	6	6	6	6	5	Hateful
Nurturing	5	5	5	4	4	5	4	3	5	4	4	4	6	6	5	5	5	Un-nurturing
Feminine	2	4	4	5	5	4	5	3	5	3	5	5	4	4	6	5	5	Butch
Motivated	5	4	5	3	4	6	6	3	4	4	4	4	5	6	3	5	4	Unmotivated
Strong Minded	6	4	6	3	3	6	5	3	4	5	3	4	4	6	2	4	5	Naive
Confident	5	4	6	3	3	6	6	3	4	4	3	3	4	6	1	4	4	Weak
Paranoid	3	4	2	1	1	2	5	5	3	4	1	3	3	2	6	3	4	Not paranoid
Helpful	4	5	6	4	4	6	5	2	5	3	4	4	6	4	2	5	4	Unhelpful
Independent	5	4	6	3	3	6	5	3	4	3	3	4	5	6	1	4	3	Relies on others

Appendix 10: HICLAS goodness of fit data

Figure 1: Graph to represent the HICLAS mean goodness of fit scores on ranks 1 to 8 for 21 people who had experience of psychosis who completed a repertory grid



Appendix 11: Comparison between male and female participants in order to measure the affect of gender on any interpretation of the results

The distribution of the ages, number of years using mental health services and number of hospital admissions is presented in Figure 18 below. Visual inspection of the box-plots revealed that the males and females appeared to have similar ages, but that their use of services and number of hospital admissions was different. Given that the scores were not normally distributed, the male and female results for each variable were compared using a non-parametric test, the Mann-Whitney U (MWU). There was no significant difference between males and females on age (MWU=53.5, p=.931, 2 tailed) and number of hospital admissions (MWU=37.0, p=.210).

Examination of gender differences continued on the questionnaire data. It is possible that male and female participants had different abuse histories and varying exposure to trauma. This had to be investigated before more detailed examination of the results was conducted. The results for comparing males and females on each questionnaire variable are presented in Table 3 below. They reveal no significant difference between males and females on any questionnaire measure at the 5% level of significance.

Figure 18: Box plot to show the distribution of age, years using mental health services and number of hospital admissions for 10 men and 11 women who had experience of psychosis

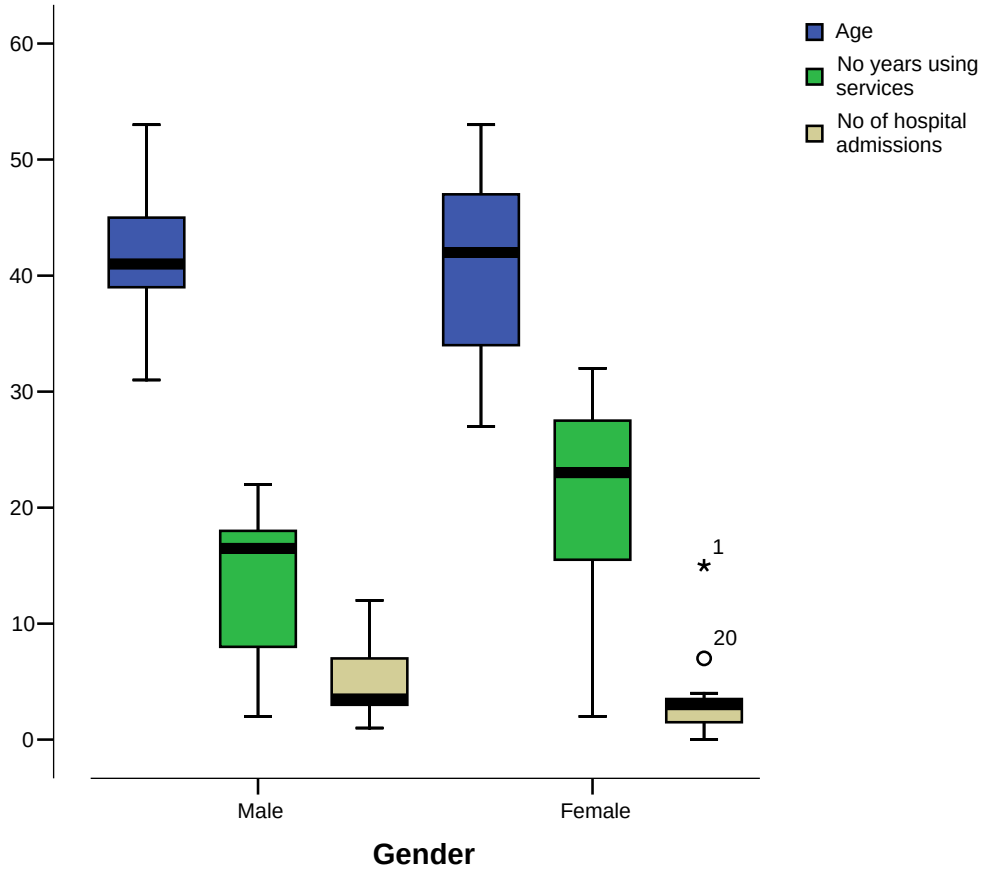


Table 5: Results of Mann-Whitney U test to compare 10 men and 11 women on 5 scales of the CTQ, the Stressful Life Experiences Scale, Impact of Event Scale Revised, Positive and Negative Symptoms Scale and the Auditory and Delusional Scales of the Psychotic Symptoms Rating Scales

Scale	Gender	N	Mean	SD	Range	Mann-Whitney U	Exact probability (2 tailed)
CTQ: Emotional Abuse	Male	10	11.7	6.02	17	38.0	.242
	Female	11	15.0	6.18	17		
CTQ: Physical Abuse	Male	10	8.60	5.66	15	39.5	.277
	Female	11	11.6	6.02	16		
CTQ: Sexual Abuse	Male	10	8.30	4.62	12	52.5	.863
	Female	11	10.6	8.19	20		
CTQ: Emotional Neglect	Male	10	10.1	5.23	16	30.5	.086
	Female	11	14.2	5.19	15		
CTQ: Physical Neglect	Male	10	6.70	2.63	7	31.5	.096
	Female	11	8.45	2.77	8		
SLES: No. Traumatic Experiences	Male	10	5.30	4.14	13	43.5	.434
	Female	11	6.18	3.43	12		
SLES: Stress when event first occurred	Male	10	46.9	41.9	140	43.0	.416
	Female	11	54.7	32.5	102		
SLES: Stress caused by event at present	Male	10	20.6	18.0	46	37.5	.229
	Female	11	35.2	28.0	80		
IES-R: Intrusion	Male	10	1.27	1.39	3.13	52.0	.848
	Female	11	1.42	1.34	4.00		
IES-R: Avoidance	Male	10	0.926	1.14	3.38	39.5	.280
	Female	11	1.53	1.30	3.75		

IES-R: Hyper-Arousal	Male	10	0.966	1.40	3.83	42.5	.383
	Female	11	1.30	1.37	4.00		
PANSS Negative Scale	Male	10	9.60	4.11	12	52.0	.842
	Female	11	8.27	1.42	4		
PSYRATS Auditory Hallucinations	Male	10	11.4	13.6	34	44.0	.406
	Female	11	7.27	12.5	29		
PSYRATS Delusions Scale	Male	10	4.80	7.04	19	45.0	.443
	Female	11	3.09	6.89	18		

Appendix 12: Comparison between high and low trauma groups on demographic data and questionnaire data

Demographic Variables

If a participant scored in the severe range on any scale of the CTQ they were placed into the high trauma group. The high and low trauma groups were compared on three demographic variables, age, number of years using mental health services and number of hospital admissions. A graphical representation of the distribution of these three variables is shown in Figure 19. Given that the variables were not normally distributed, a non-parametric test was conducted on each variable to see if there was a difference between the high and low trauma groups. The results are presented in Table 4. They reveal that there was no significant difference between the two groups at the 5% level in age (MWU=44.5, p=.477, 2 tailed) and number of years using mental health services (MWU=40.0, p=.305, 2 tailed). However, there was a significant difference between the two groups in the number of hospital admissions (MWU=27.5, p=.050, 2 tailed).

Childhood Trauma Questionnaire

The distribution of CTQ scores for the high and low trauma groups are presented in Figure 20. Visual inspection of the box-plots indicated that the high trauma group had higher scores on the CTQ scales. However, the emotional abuse and emotional neglect scales have an overlap in the distribution of scores in the high and low trauma groups. These two forms of abuse were less likely to distinguish the high and low trauma groups. In contrast, the other scales, for example the sexual abuse scale, clearly defined whether a participant was in the high or low trauma group. Given the scale scores were not normally distributed, to compare the high and low trauma groups on each scale a MWU test was used. The results of this test can be found in Table 5. There was a significant difference between the two groups at the 5% level on the CTQ emotional abuse (MWU = 22.0,

p=.009, 1 tailed), physical abuse (MWU=17.0, p=.002, 1 tailed), sexual abuse (MWU=14.0, p=.001, 1 tailed) and physical neglect scales (MWU=23.5, p=.012, 1 tailed). However, the difference between the groups on the emotional neglect scale (MWU=31.5, p=.051, 1 tailed) was in the right direction with the low trauma group having a lower mean score on this scale than the high trauma group but just above the cut-off level for significance.

Stressful Life Experiences Scale and Impact of Events Scale-Revised

The results of the comparison between the high and low trauma groups on the SLES are shown in Table 5. At the 5% level the high trauma group had encountered more stressful events (MWU=16.5, p=.002, 1 tailed), had felt more stressed about events when they first occurred (MWU=16.5, p=.003, 1 tailed) and also seemed to experience more stress from the traumatic events at present (MWU=22.0, p=.009, 1 tailed). The SLES-L data also provides the frequency of specific traumatic life events. This data is presented in Table 6. A comparison of the sample divided by gender reveals that the frequency and range of experiences was between the males and females was similar. A notable exception was in relation to sexual abuse in childhood and adulthood with females tending to have a greater frequency of childhood sexual abuse (3:5) and adult sexual abuse (0:6) than males. When the sample is compared according to high and low trauma there were two people who experienced sexual abuse in childhood whose level of abuse measured on the CTQ did not place them in the severe range. The six females who experienced sexual abuse in adulthood were all in the high trauma group. Generally, as expected, the high trauma group had a higher frequency on all the stressful life events than the low trauma group.

The results of the comparison between the high and low trauma groups on the IES are shown in Table 5. At the 5% level, there was no difference between the high and low trauma groups on the intrusion scale (MWU=46.0, p=.268, 1

tailed), the avoidance scale (MWU=45.0, p=.246, 1 tailed) and the hyperarousal scale (MWU=41.5, p=.172, 1 tailed).

Negative Scale of the Positive and Negative Symptoms Scale and the Psychotic Symptoms Rating Scales

The results of the comparison between the high and low trauma groups on the negative scale of the PANSS are shown in Table 5. At the 5% level there was no difference between the high and low trauma groups (MWU=51.0, p=.400, 1 tailed) indicating no difference in current negative symptoms of psychosis between the high and low trauma groups.

The results of the comparison between the high and low trauma groups on the PSYRATS are shown in Table 5. At the 5% level, there was no difference between the high and low trauma groups on the auditory hallucinations scale (MWU=42.0, p=.153, 1 tailed) and the delusions scale (MWU=54.0, p=.440, 1 tailed). This indicates there was no significant difference in current positive symptoms of psychosis between the high and low trauma groups.

Figure 19: Box plot to show the distribution of three demographic variables for 21 participants who had experience of psychosis. The participants were placed into the high trauma group if they scored ‘severe’ on any scale of the CTQ.

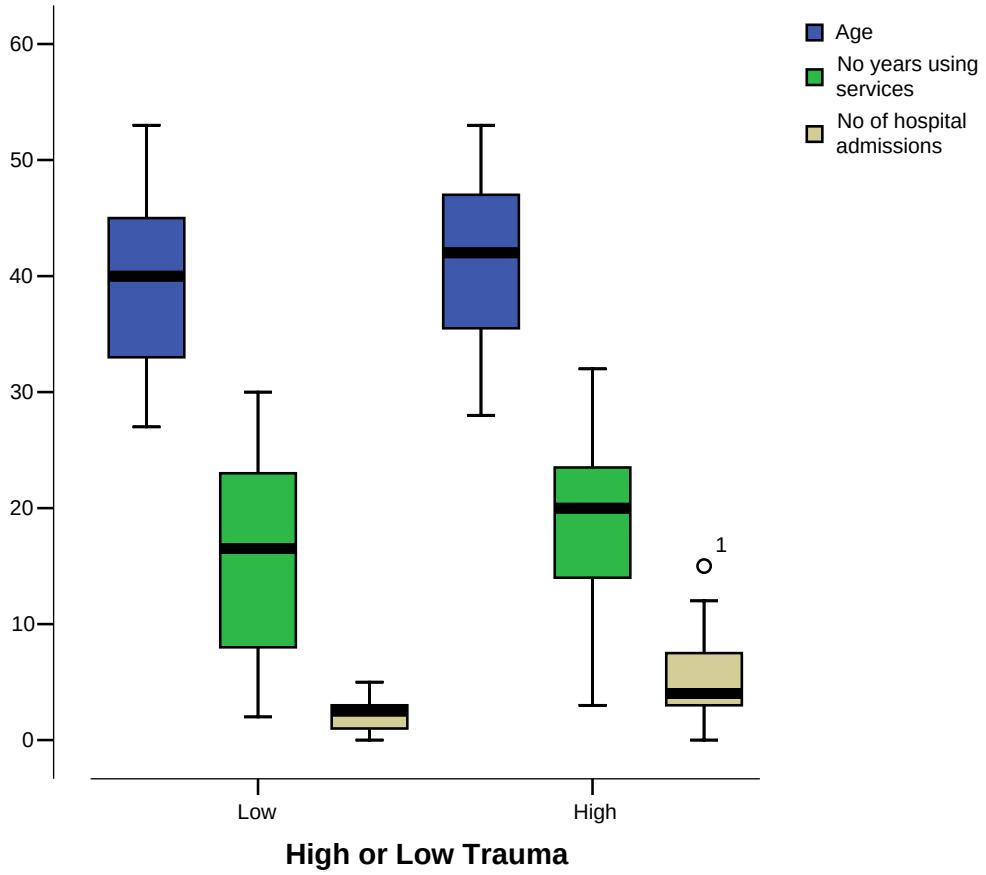


Table 6: Results of Mann-Whitney U test to compare high and low trauma groups on demographic variables age, no. years using mental health services and no. hospital admissions

	Trauma Group	N	Mean	SD	Range	Mann-Whitney U	Exact probability (2 tailed)
Age	Low	10	39.8	7.80	26	44.5	.477
	High	11	41.9	8.06	25		
Years using mental Health services	Low	10	15.0	9.40	28	40.0	.305
	High	11	18.4	9.55	29		
No. Hospital Admissions	Low	10	2.40	1.50	5	27.5	.050
	High	11	5.82	4.54	15		

Figure 20: Box plot to show the distribution of scores of 21 people who had experienced psychosis who were divided into high and low trauma groups. The high trauma group had scored 'severe' on at least one scale of the CTQ.

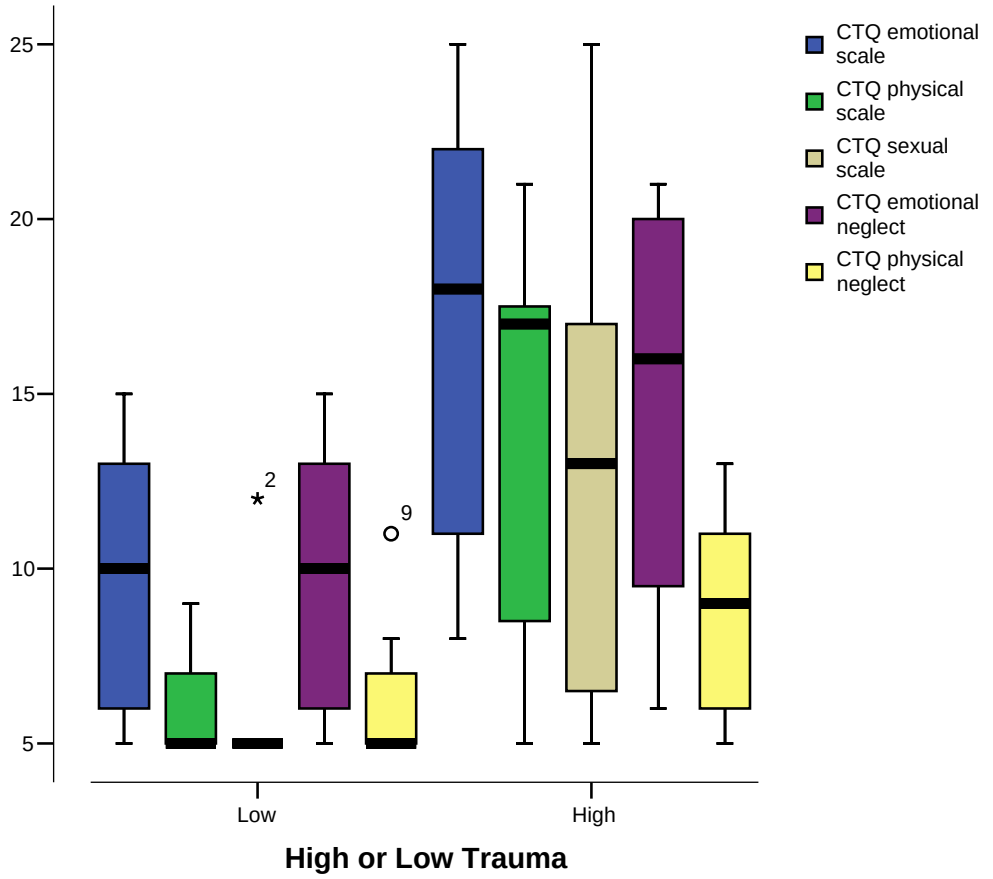


Table 7: Results of Mann-Whitney U test to compare the scores of 21 people divided into a low and high trauma group on 5 scales of the CTQ, the Stressful Life Experiences Scale, Impact of Event Scale Revised, Positive and Negative Symptoms Scale and the Auditory and Delusional Scales of the Psychotic Symptoms Rating Scales.

Scale	Trauma Group	N	Mean	SD	Range	Mann-Whitney U	Exact probability (1 tailed)
CTQ: Emotional Abuse	Low	10	9.90	3.87	10	22.0	.009
	High	11	16.6	6.27	17		
CTQ: Physical Abuse	Low	10	6.10	1.52	4	17.0	.002
	High	11	13.9	5.99	16		
CTQ: Sexual Abuse	Low	10	5.70	2.21	7	14.0	.001
	High	11	12.9	7.57	20		
CTQ: Emotional Neglect	Low	10	9.90	3.57	10	31.5	.051
	High	11	14.4	6.19	15		
CTQ: Physical Neglect	Low	10	6.30	2.00	6	23.5	.012
	High	11	8.82	2.93	8		
SLES: No. Traumatic Experiences	Low	10	3.50	2.68	7	16.5	.002
	High	11	7.82	3.37	11		
SLES: Stress when event first occurred	Low	10	29.8	25.3	68	16.5	.003
	High	11	70.3	35.2	136		
SLES: Stress caused by event at present	Low	10	15.6	17.1	45	22.0	.009
	High	11	39.7	24.9	79		
IES-R: Intrusion	Low	10	1.09	1.30	4.00	46.0	.268
	High	11	1.58	1.37	3.13		
IES-R: Avoidance	Low	10	1.09	1.34	3.75	45.0	.246
	High	11	1.38	1.18	3.38		

IES-R: Hyper-Arousal	Low	10	0.85	1.30	4.00	41.5	.172
	High	11	1.41	1.41	3.83		
PANSS Negative Scale	Low	10	8.80	2.44	8	51.0	.400
	High	11	9.00	3.58	12		
PSYRATS Auditory Hallucinations	Low	10	5.80	10.1	29	42.0	.153
	High	11	12.4	14.7	34		
PSYRATS Delusions Scale	Low	10	3.40	6.28	18	54.0	.440
	High	11	4.36	7.59	19		

Table 8: Frequency data for types of stressful life events experienced by 21 participants who had experienced psychosis

Life Event – witnessed or experienced	Male	Female		Low Trauma	High Trauma
Natural disaster like a hurricane or earthquake	2	0		0	2
Human made disaster like a plane crash	1	0		0	1
Serious accident or injury	3	4		3	4
Chemical or radiation exposure to me, close friend or family member	1	0		0	1
Life threatening illness to me, close friend or family member	6	9		6	9
The death of my spouse or child	2	1		0	3
The death of a close friend or family member	8	8		6	10
I, a close friend or family member, being kidnapped or taken hostage	1	3		3	1
I, a close friend or family member has been the victim of a terrorist attack or torture	1	0		0	1
I have been involved in combat or a war or lived in a war affected area	0	0		0	0
I have seen or handled dead bodies other than at a funeral	4	2		2	4
I have felt responsible for the serious injury or death of another person	4	3		2	5
I have witnessed or been attacked with a	5	5		3	7

weapon other than in combat or family setting					
As a child / teen I was hit, spanked, choked or pushed hard enough to cause injury	2	5		0	7
As an adult, I was hit, choked or pushed hard enough to cause injury	3	6		2	7
As an adult or child, I have witnessed someone else being choked, hit, spanked, or pushed hard enough to cause injury	3	6		2	7
As a child / teen I was forced to have unwanted sexual contact	3	5		2	6
As an adult I was forced to have unwanted sexual contact	0	6		0	6
As a child or adult I have witnessed someone else being forced to have unwanted sexual contact	0	1		0	1

Appendix 13: Comparison between high CSA and low CSA groups on demographic and questionnaire data

Demographic Variables

If a participant scored 'none' on the SAS of the CTQ they were placed into the low CSA group. Figure 21 represents the distribution of scores on the three main demographic variables for the high CSA and low CSA groups. Given that the variables were not normally distributed, a non-parametric test was conducted on each variable to see if there was a difference between the high and low CSA groups. The results are presented in Table 7. They reveal that there was no significant difference between the two groups at the 5% level in age (MWU=33.0, p=.126, 2 tailed) and number of years using mental health services (MWU=30.0, p=.081, 2 tailed) and number of hospital admissions (MWU=35.5, p=.173, 2 tailed).

Childhood Trauma Questionnaire

The distribution of CTQ scores for the high and low CSA groups are presented in Figure 22. Visual inspection of the box-plots indicated that the high CSA group had higher scores on the CTQ scales. However, the emotional abuse, emotional neglect and physical neglect scales have an overlap in the distribution of scores in the high and low CSA groups. These three forms of abuse were less likely to distinguish the high and low CSA groups. As expected the sexual abuse scale clearly defined whether a participant was in the high or low CSA group. To compare the high and low CSA groups a Mann Whitney-U test was used. The results of this test can be found in Table 8. There was a significant difference between the two groups at the 5% level on the CTQ emotional abuse (MWU = 27.0, p=.024, 1 tailed) and physical abuse (MWU=21.0, p=.006, 1 tailed) scales. However there was no significant difference between the two groups at the 5%

level on the physical neglect scales (MWU=38.5, p=.124, 1 tailed) and emotional neglect scale (MWU=50.0, p=.371, 1 tailed) scales.

Stressful Life Experiences Scale and Impact of Events Scale-Revised

The results of the comparison between the high and low CSA groups on the SLES are shown in Table 8. At the 5% level the high CSA group had encountered more stressful events (MWU=9.50, p=.000, 1 tailed), had felt more stressed about events when they first occurred (MWU=8.00, p=.000, 1 tailed) and also seemed to experience more stress from the traumatic events at present (MWU=12.0, p=.001, 1 tailed). The results of the comparison between the high and low CSA groups on the IES are shown in Table 8. At the 5% level, there was a significant difference between the high and low CSA groups on the intrusion scale (MWU=28.0, p=.027, 1 tailed) and the hyperarousal scale (MWU=35.0, p=.078, 1 tailed) and approaching significance on the avoidance scale (MWU=33.0, p=.060, 1 tailed).

Negative Scale of the Positive and Negative Symptoms Scale and the Psychotic Symptoms Rating Scales

The results of the comparison between the high and low CSA groups on the negative scale of the PANSS are shown in Table 8. At the 5% level there was no difference between the high and low CSA groups (MWU=53.0, p=.447, 1 tailed) indicating no difference in current negative symptoms of psychosis between the high and low trauma groups.

Visual inspection of the distributions of PSYRATS scores for the high and low CSA groups revealed that there was an overlap between the distributions of the high and low groups. The results of the comparison between the high and low CSA groups on the PSYRATS are shown in Table 8. At the 5% level, there was no difference between the high and low CSA groups on the auditory hallucinations scale (MWU=38.0, p=.089, 1 tailed) and the delusions scale

(MWU=51.0, p=.341, 1 tailed). This indicates there was no significant difference in current positive symptoms of psychosis between the high and low CSA groups.

Figure 21: Box plot to show the distribution of three demographic variables for 21 participants who had experience of psychosis. The participants were placed into the low CSA group if they scored 'none' on the SAS of the CTQ.

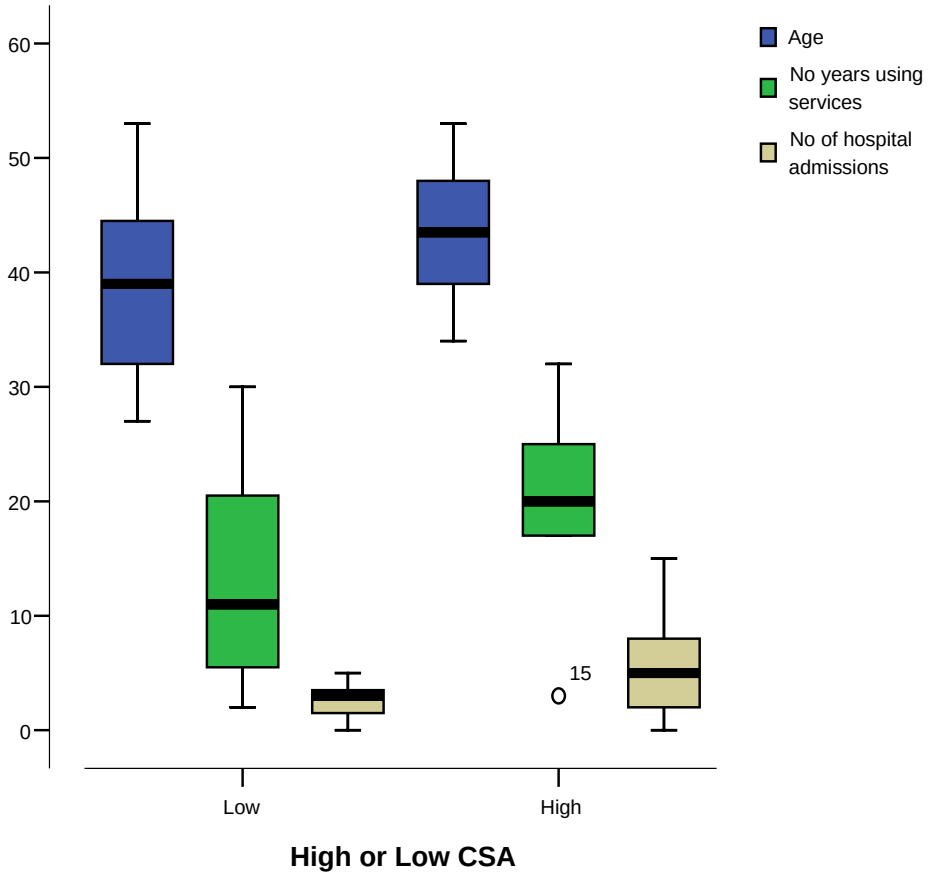


Table 9: Results of Mann-Whitney U test to compare high CSA and low CSA groups on demographic variables age, no. years using mental health services and no. hospital admissions

	CSA Group	N	Mean	SD	Range	Mann-Whitney U	Exact probability (2 tailed)
Age	Low	11	38.36	8.29	26	33.0	.126
	High	10	43.7	6.53	19		
Years using mental Health services	Low	11	13.4	9.61	28	30.0	.081
	High	10	20.5	8.02	29		
No. Hospital Admissions	Low	11	2.64	1.50	5	35.5	.173
	High	10	5.90	4.81	15		

Figure 22: Box plot to show the distribution of scores of 21 people who had experienced psychosis who were divided into high and low CSA groups. The low CSA group had scored 'none' on the SAS of the CTQ.

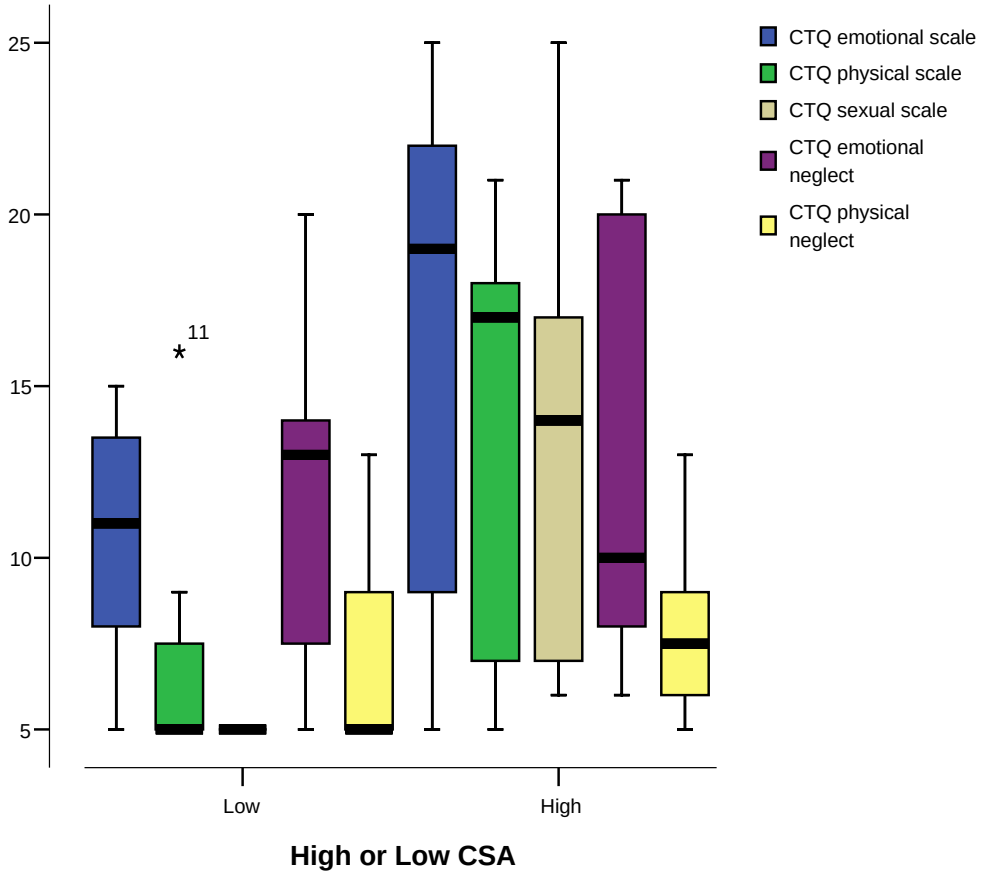


Table 10: Results of Mann-Whitney U test to compare the scores of 21 people divided into a low and high CSA group on 5 scales of the CTQ, the Stressful Life Experiences Scale, Impact of Event Scale Revised, Positive and Negative Symptoms Scale and the Auditory and Delusional Scales of the Psychotic Symptoms Rating Scales.

Scale	CSA Group	N	Mean	SD	Range	Mann-Whitney U	Exact probability (1 tailed)
CTQ: Emotional Abuse	Low	11	10.6	3.56	10	27.0	.024
	High	10	16.6	7.04	20		
CTQ: Physical Abuse	Low	11	7.00	3.32	11	21.0	.006
	High	10	13.7	6.27	16		
CTQ: Sexual Abuse	Low	11	n/a			n/a	n/a
	High	10					
CTQ: Emotional Neglect	Low	11	11.8	5.06	15	50.0	.371
	High	10	12.7	6.17	15		
CTQ: Physical Neglect	Low	11	7.18	2.93	8	38.5	.124
	High	10	8.10	2.69	8		
SLES: No. Traumatic Experiences	Low	11	3.36	2.58	7	9.50	.000
	High	10	8.40	2.91	9		
SLES: Stress when event first occurred	Low	11	26.7	24.2	68	8.00	.000
	High	10	77.7	28.5	100		
SLES: Stress caused by event at present	Low	11	13.7	15.8	44	12.0	.001
	High	10	44.2	22.4	65		
IES-R: Intrusion	Low	11	.774	1.21	4.00	28.0	.027
	High	10	1.98	1.20	3.13		
IES-R: Avoidance	Low	11	.922	1.34	3.75	33.0	.060
	High	10	1.59	1.06	3.38		

IES-R: Hyper-Arousal	Low	11	.773	1.26	4.00	35.0	.078
	High	10	1.55	1.41	3.83		
PANSS Negative Scale	Low	11	8.64	2.38	8	53.0	.447
	High	10	9.20	3.71	12		
PSYRATS Auditory Hallucinations	Low	11	5.27	9.80	29	38.0	.089
	High	10	13.6	14.9	34		
PSYRATS Delusions Scale	Low	11	3.09	6.04	18	51.0	.341
	High	10	4.80	7.86	19		

Appendix 14: Descriptive statistics for comparison between the high and low trauma groups on the main hypothesis variables

Table 11: Results of Mann-Whitney U test to compare the scores of 21 people divided into a low and high trauma group on their level of elaboration of the element 'self now', conflict in the element 'self now', distance between 'self now' and 'other people' and difference between Negative Life Event 1 (NLE1) and Positive Life Event 1 (PLE1) by level and by connected constructs.

Variable	Trauma Group	N	Mean	SD	Range	Mann-Whitney U	Exact probability (1 tailed unless stated)	Effect Size
HICLAS: Level of element 'self now'	Low	10	2.50	.527	1	50.0	.440	.231
	High	11	2.36	.674	2			
HICLAS: Constructs connected to 'self now'	Low	10	5.00	.943	3	42.0	.189	.400
	High	11	4.45	1.7	5			
Conflict Self-now	Low	10	5.1	1.85	6.5	49.0	.692 (2 tailed)	.0264
	High	11	4.95	1.57	4.7			
Distance between Self-now and others	Low	10	.870	.127	.41	34.5	.078	.655
	High	11	.960	.147	.46			
HICLAS: Level of Element 'NLE1'	Low	10	1.60	.843	2	39.0	.237 (2 tailed)	.494
	High	11	2.00	.775	2			
HICLAS: Level of Element 'PLE1'	Low	10	2.20	.789	2	53.0	.963 (2 tailed)	.0772
	High	11	2.27	1.01	3			
HICLAS: Constructs Connected to 'NLE1'	Low	10	3.00	2.31	7	35.0	.161 (2 tailed)	.424
	High	11	3.82	1.47	5			
HICLAS: Constructs Connected to 'PLE1'	Low	10	4.40	1.58	4	48.5	.654 (2 tailed)	.202
	High	11	4.73	1.68	5			

Appendix 15: Descriptive statistics for comparison between the high CSA and low CSA groups on the main hypothesis variables

Table 12: Results of Mann-Whitney U test to compare the scores of 21 people divided into a low and high CSA group on their level of elaboration of the element 'self now', conflict in the element 'self now', distance between 'self now' and 'other people' and difference between Negative Life Event 1 (NLE1) and Positive Life Event 1 (PLE1) by level and by connected constructs.

Variable	CSA Group	N	Mean	SD	Range	Mann-Whitney U	Exact probability (1 tailed unless stated)	Effect size
HICLAS: Level of element 'self now'	Low	11	2.64	.505	1	34.5	.094	.769
	High	10	2.20	.632	2			
HICLAS: Constructs connected to 'self now'	Low	11	5.36	1.21	4	24.0	.014	1.11
	High	10	4.00	1.25	4			
Conflict Self-now	Low	11	4.63	1.62	6.5	39.0	.137	.494
	High	10	5.45	1.70	4.9			
Distance between Self-now and others	Low	11	.871	.121	.41	33.5	.068	.713
	High	10	.969	.152	.46			
HICLAS: Level of Element 'NLE1'	Low	11	1.45	.688	2	27.0	.051 (2 tailed)	1.01
	High	10	2.20	.789	2			
HICLAS: Level of Element 'PLE1'	Low	11	2.36	.809	2	44.0	.416 (2 tailed)	.287
	High	10	2.10	.994	3			
HICLAS: Constructs Connected to 'NLE1'	Low	11	2.73	1.62	5	30.0	.078 (2 tailed)	.810
	High	10	4.20	1.99	7			
HICLAS: Constructs Connected to 'PLE1'	Low	11	4.73	1.79	5	48.0	.630 (2 tailed)	.204
	High	10	4.40	1.43	4			

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Childhood Sexual Abuse and Construction of Self and Others in People who have Experienced Psychosis

4808 words excluding references

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Abstract

The link between trauma and psychosis has become more apparent over recent years. This study aimed to investigate how Childhood Sexual Abuse (CSA) affects one's self-construction and construction of other people. A sample of 21 people who had experienced psychosis was divided into high and low CSA groups. They were compared on repertory grids which included the element 'self now' and elements that represented other people. The results indicated that people who had experienced high CSA had lower levels of self elaboration, greater conflict in the element 'self now' and saw themselves less like other people. The results were discussed in relation to trauma, self-elaboration and possible causes of psychosis.

Introduction

A number of recent reviews provide evidence that CSA is related to symptoms of psychosis (e.g. Read, 1997; Read, Agar, Argyle and Aderhold, 2003; Read, van Os, Morrison, and Ross 2005). This study aims to investigate whether Personal Construct Theory (PCT) can add to this growing body of research. From a PCT perspective, Erbes and Harter (2002) thought that CSA represents a potentially traumatic experience that violates personal constructions of self and others and that having construct systems that were different to other people made it harder for survivors to anticipate and understand other peoples' behaviour. These differences were highlighted by Freshwater, Leach and Aldridge (2001) who found that the repertory grids of survivors of CSA indicated higher levels of depression and perceived distress, lower self-esteem and higher self / ideal self discrepancy than non-abused controls.

PCT has a long history of research in psychosis and since Bannister's early work (e.g. Bannister, 1960, 1963, 1965) repertory grids have made a key contribution to our understanding of the construct systems of people who have a diagnosis of schizophrenia. His serial invalidation hypothesis was developed by Radley (1974) and later Lorenzini, Sassaroli and Rocchi (1989) to include consideration of the hierarchical nature of construct systems and how they may play a role in psychosis. Developments in computer programmes enabled more advanced analysis of these hierarchical structures and one of these, HICLAS (e.g. Rosenberg, van Mechelen and de Boeck, 1996), will be used in the current study. Having a well elaborated (i.e. hierarchically elevated) self-concept was theorised to be protective against potential invalidation of the self (e.g. Gara, Rosenberg and Cohen, 1987). In schizophrenia research, the HICLAS programme has been used to investigate whether poor elaboration of the self-concept might be a feature of schizophrenia. For example, Gara, Rosenberg and Mueller (1989) conducted an investigation into the perception of self and others in people who have schizophrenia. They found that the schizophrenic group had a more poorly elaborated view of self. This was represented in the HICLAS solution by the element 'self' being much lower in the hierarchical structure of schizophrenics' grids than the controls' grids. Summarising this and other research, Rosenberg and Gara (1992) felt that schizophrenia was likely to be a consequence of individuals being unable to develop elaborated identities.

Further research using HICLAS to investigate the hierarchical nature of construct systems has been conducted within the field of Posttraumatic Stress Disorder (PTSD) research. For example Sewell, Cromwell, Farrell-Higgins, Palmer, Ohilde and Patterson (1996) used life events repertory grids to examine the construct systems of people with PTSD. In their study with 60 Vietnam veterans, 30 had PTSD and 30 had no PTSD or psychiatric problem. They found that Vietnam veterans who had PTSD had been unable to elaborate their traumatic Vietnam experiences when compared to those who did not have PTSD.

In summary, research in both PTSD and psychosis has used a PCT framework to investigate the role of the hierarchical nature of construct systems. To the best of the author's knowledge, there has not been published work considering how trauma may influence the construct systems of people who have experienced psychosis. In this study the way that trauma may affect one's self-concept or view of self will be investigated. It is possible that the invalidation caused by CSA leads to a view of self and others that may be pathological. Given the evidence that traumatic events are unelaborated in PTSD and that self-concept is unelaborated in psychosis, it may be because of CSA that people with psychosis have unelaborated self-concepts. This hypothesis would be in line with Sewell (2005), who has noted how traumatic events have a profound effect on one's self-view.

In addition to self-elaboration, a new method to measure the conflict between elements and constructs developed by Bell (2004a) will be utilised. As noted by Bell, Winter and Watson (submitted) the notion that mental conflict is a feature of psychological problems seems obvious and has been a feature of therapy from early psychoanalysis through to modern approaches. Following Bell (2004a), we can consider the relationship between an element and two constructs and see whether the three components to their relationship fall in a predictable manner. For example, the element 'I' may have a conflicting relationship with two constructs 'writing a thesis or not' and 'anxiety provoking or not'. This might be expressed in the statement 'I like writing a thesis, I don't like being anxious, but I associate writing a thesis with anxiety'. In this study, it was hypothesised that there would be greater conflict in the element 'self now' following traumatic life events, because greater conflict within an element would prevent it from becoming elaborated.

Finally it is hypothesised that following CSA people will be more likely to view themselves as less like other people. This follows work by Harrop and Trower (2003) suggesting that social isolation may put people at risk for

developing psychosis in later life. To investigate perceived social isolation using repertory grids, the distance between the element ‘self now’ and elements representing ‘other people’ will be measured. This measure of integration was first used by Ryle and Breen (1972) to compare the use of constructs between self and others. It was used to compare self-other distances in the construct systems of non-psychiatric, depressed and bipolar depressed participants by Ashworth, Blackburn and McPherson (1982 and 1985). Although they did not find significant differences between the integration scores of depressed, bipolar and schizophrenic patients, they did not use this measure to investigate the effects of trauma on construing. Therefore, this study will extend the use of this measure to consider how trauma may operate in people who have experienced psychosis.

Elaboration of self, conflict in the self concept and self-other distance will be investigated in the following hypotheses:

1. Participants who have had psychotic experiences who have also experienced CSA will have a more unelaborated self concept than participants who have had psychotic experiences but no CSA.

2. Participants who have had psychotic experiences who have also experienced CSA will have a greater level of conflict concerning their self concept than participants who have had psychotic experiences but no CSA.

3. Participants who have had psychotic experiences who have also experienced CSA will have a greater distance between their concept of self and other people (i.e. experience more social isolation) than participants who have had psychotic experiences but no CSA.

Method

Ethical approval was obtained from West Essex Local Research Ethics Committee. Using Cohen's conventions for effect sizes (Cohen, 1992), a total sample size of 25 would be required to detect a mean difference amounting to a medium effect size (power = 0.80, alpha error = 10%, 1 tailed).

Design

To explore the research questions listed above a cross sectional approach was employed. The main design feature was to divide the cross section of participants into two groups, a high CSA group and a low CSA group. If a participant scored 'none' on the Sexual Abuse Scale (SAS) of the Childhood Trauma Questionnaire (CTQ) (Bernstein and Fink, 1998) they were placed in the low CSA group.

Participants

Participants were people who had experienced psychosis aged between 18 to 65 years old. They were a convenience sample recruited from psychiatric services in two NHS Trusts through their care coordinators. The minimum inclusion criterion for the study was evidence of at least one Schneiderian first rank symptom of schizophrenia (Schneider, 1959). An information sheet was read and discussed with each participant. Following this discussion, signed consent to participate was obtained before commencing the study. Confidentiality was assured with all participants and they were all offered feedback on their results.

Measures

Basic demographic information was collected on each participant and in addition five questionnaires were used. Traumatic life events were measured using the CTQ, the Stressful Life Experiences Screening – Long Form (Stamm et al., 1996) and the Impact of Event Scale – Revised (IES-R) (Weiss and Marmar, 1997). To measure current symptoms of psychosis, the Psychotic Symptom Rating Scales (PSYRATS) (Haddock et al., 1999) and the negative scale of the Positive and Negative Syndrome Scale (PANSS) (Kay et al., 1987) were used.

In addition to these measures, a structured interview using a repertory grid was completed with the elements for the repertory grid listed in Table 1. To generate the constructs, Kelly's (1955) Self-identification Form was used, meaning that the element 'Self now' was retained in all triadic presentations. Participants were asked the question "In what important way are two of these alike and thereby different from the third?" The answer to this question gave the emergent construct pole, which was written down. The investigator then attempted to elicit the contrast pole of the construct by asking "In what way does the third element differ from the other two?" The answer to this question was then written down as the contrast pole of the construct. The final step in the procedure was to ask the participants to rate the elements against each bipolar construct. A rating scale was used with the emergent pole given the value '6' and the contrast pole given the value '1'. Participants were reminded that because it was a rating scale, values from 6 down to 1 could be used to rate an element on a construct. Immediately after a construct was generated, the elements were rated on the construct.

Table 1: Element categories used in this study

Category	Elements
Other people	Father Mother Brother / Sister or close relative before age 16 Spouse / Partner or person close to this role Man you like Man you dislike Woman you like Woman you dislike
Self at different times in life, different roles in life and self states	Self as a child Self as a teenager Self as a service user Self now Ideal self
Self during positive and negative life events	Self during worst life event before age 16 years old Self during best life event before age 16 years old Self during worst life event after age 16 years old Self during best life event after age 16 years old

Computer programmes used to analyse the repertory grids

Idiogrid (Grice, 2004)

This programme was used to produce graphical representations of the repertory grid results. It was also used to calculate the repertory grid measures (e.g. distance between self now and other people), except for the conflict and self-elaboration measures.

Gridstat (Bell, 2004b)

This programme was used to calculate the conflict measure. The concept of conflict was discussed in the introduction.

HICLAS (de Boeck, van Damme and van Mechelen, 1992)

As noted in the introduction, the HICLAS programme is an algorithm that can be used to generate a model of the relationship between constructs and elements. HICLAS yields a set-theoretical structure by means of an iterative heuristic that is intended to minimise the number of discrepancies between the obtained structure and the data. The algorithm alternates between the rows and columns of the grid to find the best fitting row classes and column classes and their set-theoretical relations. A major consideration when using HICLAS is the choice of the rank of the final model. The choice of rank in HICLAS involves a trade-off between parsimony (low rank) and goodness-of-fit (which improves with increasing rank). A guideline is the choice of a rank beyond which the goodness-of-fit decreases slightly in comparison with previous decreases (Rosenberg et al. 1996). Previous studies investigating self-elaboration in schizophrenia have used HICLAS structures at rank 3 (e.g. Gara et al., 1987). Studies investigating trauma have used HICLAS structures at rank 4 (Sewell et al., 1996) and rank 5 (Winter and Gould, 2000). The goodness of fit data for ranks 1 through to 8 was calculated for each participant. This data was plotted in a graph and visual inspection of this

graph indicated that the goodness of fit began to flatten out at rank 4 and seemed to level off at rank 5. This is a rather subjective process and therefore the results of previous research must also be taken into consideration when choosing the HICLAS rank to utilise. Given previous work by Sewell (1996) and Sewell et al. (1996) used rank 4, the decision was made to use rank 4 for all subsequent HICLAS data analysis.

Results

There were 21 participants in the study, 11 women and 10 men. Their mean age was 40.9 years old (range 27 to 53 years). Their mean number of years of using mental health services was 16.8 years (range 2 to 32 years). Their mean number of hospital admissions was 4 (range 0 to 15 admissions). In addition, there were 8 people who consented to take part in the study but who did not complete all the measures. They were excluded from any further data analysis. The data were analysed to examine if there were any differences between the men and women taking part in the study. The only gender difference in terms of demographic data was that the women had on average spent more years using mental health services than the men. There were no gender differences on any questionnaire measures or main hypothesis variables.

Hypothesis 1

The elaboration of the element ‘self now’ was measured by HICLAS in two main ways. The first was the level of the element in the hierarchy, with higher numbers equal to greater elaboration. The second was the number of constructs connected to the element ‘self now’. The greater the number of constructs connected to an element, the greater the elaboration of the element. A summary of the elaboration index scores for level of ‘self now’ are presented in Table 2.

The frequency of these scores is presented in Figure 1. As Figure 1 shows, there was a difference between the high and low CSA groups. The low CSA group had a greater frequency of scores at level three than the high CSA group. The level of 'self now' in the high and low CSA groups was compared using a Mann-Whitney U test. The result, shown in Table 2, indicated that there was no significant difference at the 5% level between the two groups (MWU=34.5, p=.094, 1-tailed). However, the corresponding effect size was large (Cohen's d=.769). A summary of the elaboration index scores according to number of constructs connected to 'self now' are presented in Table 2. The frequency of these scores is presented in Figure 2. As Figure 2 shows, the low CSA group had more constructs connected to 'self now' than the high CSA group and this difference was compared using a Mann-Whitney U test. The result, shown in Table 2, indicated a significant difference at the 5% level between the two groups (MWU=24.0, p=.014, 1-tailed), with a large corresponding effect size (Cohen's d=1.11). Therefore, the self-elaboration results provided good support for Hypothesis 1.

Table 2: Results of Mann-Whitney U test to compare the scores of 21 people divided into a low and high CSA group on their level of elaboration of the element 'self now', conflict in the element 'self now' and distance between 'self now' and 'other people'.

Variable	CSA Group	N	Mean	SD	Range	Mann-Whitney U	Exact probability (1 tailed)	Effect size
HICLAS: Level of Element 'self now'	Low	11	2.64	.505	1	34.5	.094	.769
	High	10	2.20	.632	2			
HICLAS: Constructs connected to 'self now'	Low	11	5.36	1.21	4	24.0	.014	1.11
	High	10	4.00	1.25	4			
Conflict Self-now	Low	11	4.63	1.62	6.5	39.0	.137	.494
	High	10	5.45	1.70	4.9			
Distance between Self-now and others	Low	11	.871	.121	.41	33.5	.068	.713
	High	10	.969	.152	.46			

Figure 1: Bar graph to show the frequency of elaboration index scores for 21 people who had experienced psychosis. The index was the level of element 'self now' in the HICLAS structure. The participants were divided into high and low CSA groups, with the low CSA group scoring 'none' on the SAS of the CTQ.

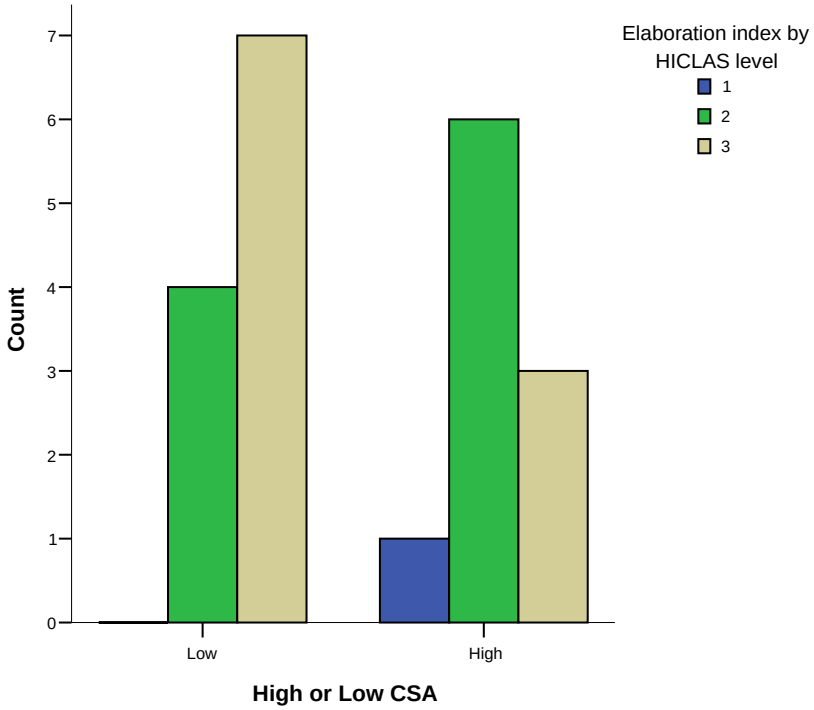
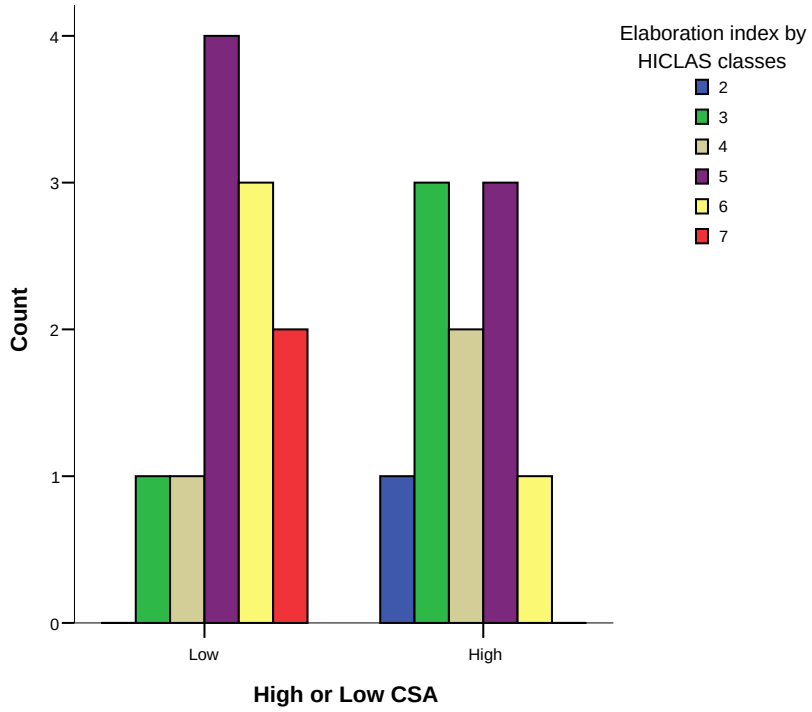


Figure 2: Bar graph to show the frequency of elaboration index scores for 21 people who had experienced psychosis. The index was the number of constructs connected to the element 'self now'. The participants were divided into high and low CSA groups with the low CSA group scoring 'none' on the SAS of the CTQ.

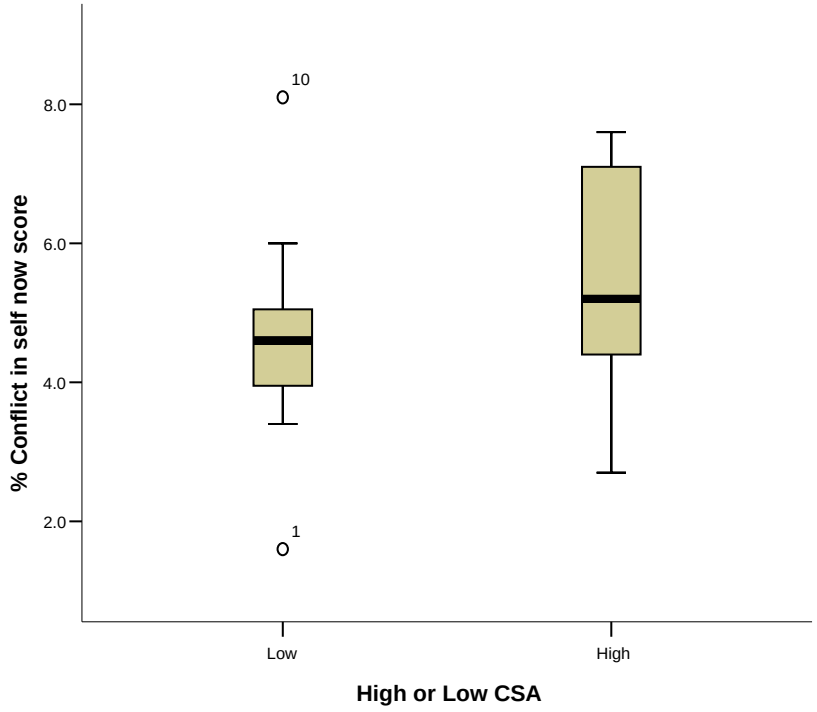


Hypothesis 2

The procedure for testing this hypothesis was to use the data from the level of conflict within the element 'self now'. The concept of conflict was discussed above. The average total percentage conflict in the repertory grids of the whole sample was 37.1% (range 28.1 – 50.1%, s.d. 5.22). The average conflict in the element 'self now' was 5.02% (range 1.6 – 8.1%, s.d. 1.67). The conflict in the 'self now' element related to conflict concerning each individual's self concept. The distribution of the conflict scores is shown in Figure 3. As Figure 3 shows, the high CSA group tended to have more conflict than the low CSA group. A

Mann-Whitney U test was used to compare this difference. The result indicated that there was no significant difference at the 5% level between the two groups (MWU=39.0, p=.137, 1 tailed). However, the corresponding effect size was moderate (Cohen's d=.494), providing some moderate support for Hypothesis 2.

Figure 3: Box plot of the distribution of conflict in the element 'self-now' for 21 people who had experienced psychosis. The participants were divided into high and low CSA groups, with the low CSA group scoring 'none' on the SAS of the CTQ.



Hypothesis 3

The procedure for testing this hypothesis was to take the data that measures the distance between elements in the repertory grid. The distance of interest was that between the element ‘self now’ and all elements that represented ‘other people’ i.e. mother, father, sibling, man you like, man you dislike, woman you like, woman you dislike, spouse or partner. The distance of ‘self now’ from each of the other elements was added and then divided by eight to give the average distance of ‘self now’ from ‘other people’. The distribution of the distance scores is presented in Figure 4.

Figure 4: Box plot of the distribution of average distance between the element ‘self-now’ and other people elements for 21 participants who had experienced psychosis. The participants were divided into high and low CSA groups, with the low CSA group scoring ‘none’ on the SAS of the CTQ.

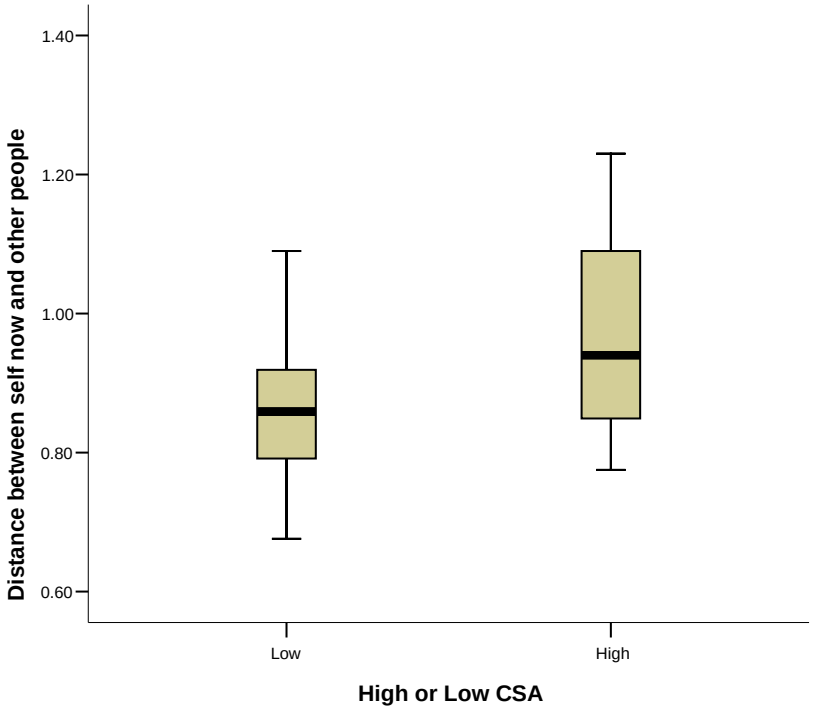


Figure 4 shows that the high CSA group tended to have greater distance between ‘self now’ and ‘other people’ than the low CSA group, but that there was

also some overlap between the two groups. A Mann-Whitney U test was used to compare the average distance between ‘self now’ and ‘other people’ in the two groups. The result at the 5% level indicated that there was not a significant difference between the two groups (MWU=33.5, p=.068, 1 tailed). However, the corresponding effect size was large (Cohen’s d=.713). Therefore there was some evidence to support Hypothesis 3, with participants in the high CSA group more likely to view themselves as unlike other people than participants in the low CSA group.

Discussion

What role does self-elaboration play in the development of psychosis following trauma?

The results from this study provide some support for the theory that childhood sexual abuse may lead to vulnerability to develop psychosis in later life. The vulnerability may be mediated by an ability to construct an elaborate self-concept. This follows from previous findings that people who have a diagnosis of schizophrenia have lower self elaboration than people with other diagnoses and non-psychiatric controls (e.g. Robey et al., 1989). However, these studies have not controlled for the experience of trauma. This study adds to previous research by suggesting that one reason for the lower self-elaboration in diagnosis of schizophrenia may have been because the ‘schizophrenia’ group had greater previous exposure to trauma. As noted by Rosenberg and Gara (1985) life events that disrupted one’s identity would threaten one’s sense of reality and continuity. CSA is a severely traumatic experience that can have an effect on one’s self-construction in later life (e.g. Erbes and Harter, 2002). Therefore it stands to reason that CSA and childhood trauma in general may prevent individuals from

developing an elaborate self-concept, increasing vulnerability to develop psychosis in later life.

In the sample of 21 participants chosen opportunistically, only two (11%) scored 'none' on all 5 scales of the CTQ and eight (44%) scored in the severe range on at least one scale. These results were qualified by the 'denial' scale on the CTQ. The denial scale indicated that only 1 participant in the low trauma group was likely to have under-reported trauma. This also fits with previous research suggesting that under-reporting of trauma is more likely to be a problem in psychosis than over-reporting (Fergusson, 2000). The high prevalence of trauma within this sample adds weight to previous research that childhood trauma is likely to lead to the development of psychosis in later life (e.g. Read et al. 2005). Although this study focused on childhood trauma, two participants reported no experience of trauma in childhood, but still had experience of psychosis in later life. It is likely that stress in adult life contributed to their experience of psychosis. One of them had developed paranoid feelings following the stressful break-up of a long-term relationship with his partner in adult life. The second had been working as a paramedic and had to attend a terrorist attack. After this event, he had developed paranoid feelings that the terrorists were trying to get after him.

Could conflict in the self-concept be related to low self-elaboration?

From the results of this study it appears that conflict in the self-concept is greater when an individual has experienced CSA. It is possible that conflict within the self-concept may have some explanatory value when it is considered within the context of low self-elaboration. It is possible that conflict in the self-concept prevents an individual from being able to develop an elaborated self-concept. Further research measuring the self-conflict in other samples would provide insight into if this is unique to psychosis, or whether it may be important in other mental health problems.

How does trauma affect perceptions of self and other people?

Although trauma may directly affect self-constructions, it is also possible that trauma has an indirect affect by preventing social relationships and encounters with other people. The results of this study support the hypothesis that following severe childhood trauma people are likely to see themselves as different to others. It is not possible to ascertain from this result whether viewing oneself as different to other people is a cause of psychosis or a consequence of psychosis. However, if trauma does cause a greater distance between self and other people it may provide some explanation for the social isolation experienced by people who have psychosis. For example, Harrop and Trower (2003) have researched the construction of self in psychosis and hypothesize that a process of gradual social isolation affects one's self-constructions and leads to the development of psychosis. The results from this study support a role for social isolation in psychosis, suggesting that trauma may contribute to social isolation.

Limitations to the suggestion that trauma led to lower self-elaboration in this sample

Employing a cross-sectional design in this study does not eliminate the possibility that some people who had experienced trauma may have developed psychosis in later life with trauma having no causal effect on their psychosis. For example, drug taking may have lead to psychosis independently of any affects of trauma. In this study efforts were made to control for this possibility by not recruiting any participants with a primary diagnosis of drug and alcohol abuse. However, this may not be accurately recorded for a number of reasons e.g. non-disclosure by participants. Another limitation is that if low self-elaboration is hypothesised to have been causal in psychosis, it does not necessarily mean that this low elaboration was caused by trauma. It is possible that the experience of psychosis had led to low self-elaboration, rather than previous trauma. Therefore an

improvement to this study would be to have a non-psychiatric control group which was also subdivided into high and low trauma groups. It is hypothesised that a non-psychosis control group would have higher levels of self-elaboration, but that the subgroup of high trauma in the control group would have lower self-elaboration than the subgroup of low trauma. Other helpful comparison groups would include examining the self-elaboration of people who have experienced CSA who do not go on to develop psychosis. It is possible that people who had experienced significant trauma but had also been able to develop an elaborated self-concept would have been able to avoid psychosis in later life.

It appears in this study that some people who had experienced severe childhood trauma had still been able to develop elaborated self-constructs. It may have been helpful in addition to measuring childhood trauma to measure what emotional and social support participant's received in childhood. For example, if high trauma participants had also received therapy this may have enabled them to develop elaborate constructions of self and other people. This is a variable that would need to be controlled in future research.

General limitations to the study

The study did not reach the level of power required. The total number of participants required was 25 and the final sample size of 21 was short of this target. In order to facilitate interpretation of all statistical tests, effect sizes were reported. However, an obvious improvement to this study would be to use a larger sample. With a larger sample the variables under investigation may have been more likely to be normally distributed. This would have allowed the use of more powerful parametric tests, rather than the non-parametric tests used in this study.

Another limitation to this study concerns diagnosis. The sample in this study did not all have a diagnosis of schizophrenia, perhaps making them a more heterogeneous sample than those used in previous self-elaboration studies. It

may be reasonable to suggest that an individual's psychological and social functioning has deteriorated sufficiently at some point in their lifetime to warrant receiving the diagnosis of schizophrenia. It is possible that the participants in this study may have been in better mental health than those in previous studies, because not all of them had received the diagnosis of schizophrenia. The level of positive and negative symptoms in the sample was low and it is possible that a sample that only included participants with the schizophrenia diagnosis may have had higher levels of positive and negative symptoms. In this study a number of participants had recovered from their previous psychosis and made steps towards recovery and rebuilding their lives. This may be atypical of samples used in previous elaboration research. It is possible that rehabilitation had enabled participants in both the high and low trauma groups to develop an elaborate view of themselves which may not reflect samples taken from inpatient settings.

Conclusion

The main finding was that there was some evidence to support an affect of trauma on the development of an elaborate self-concept. Participants who had experienced greater trauma had less elaborate self-concepts. Participants who had experienced greater trauma saw themselves as less like other people and also tended to have more conflict in their self-concept. This study design is still left with the question of causation present in all cross sectional designs. It is hard to draw firm conclusions as to whether trauma or psychosis has caused the construing observed and the results have to be interpreted in the light of previous research findings. Longitudinal studies using repertory grids may help answer questions including how an individual's construing may change as their mental health changes, or whether there are more permanent effects that might be the result of either trauma or psychosis.

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