



The connection between psychosis,
trauma and dissociation: An exploratory
study involving patients in forensic mental
health settings

Author: Jessica Ann Austin
Matriculation number: 0681085

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DClinPsychol. Declaration of own work

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Abstract

Background: High levels of dissociation have been found in recent studies involving psychiatric inpatients. Proponents of the ‘dissociative psychoses’ have found that trauma-focused intervention strategies can improve outcomes of patients with major mental illness. Despite this, levels of dissociation have not been measured in forensic inpatients in Scotland. This study investigates levels of dissociative symptoms (DES-II) within a sample of male patients in secure forensic psychiatry settings in Scotland. It explores levels of psychosis (PANSS) and self-reported childhood trauma (CTQ), current PTSD symptoms (IES-R), levels of depression (BDI-II) and broad attachment style (RQ). Four groups were arbitrarily defined based on presence or absence of psychosis and childhood trauma. It was hypothesised that levels of dissociation would be predicted by presence of childhood trauma.

Methods: A quantitative cross-sectional design was used in which 56 mentally disordered offenders were interviewed across three different secure hospitals in Scotland: The State Hospital – a maximum security psychiatric hospital, and two medium secure facilities. Attempts are made to clarify the relationship of dissociation with different types of childhood trauma and psychosis symptom clusters. By splitting the data into groups the study seeks to discern whether the groups differ significantly on dissociation scores in relation to the childhood experiences they reported and presence of psychosis they are experiencing.

Results: Childhood traumatic experiences were frequent where median CTQ total score = 47.0 (IQR: 42-70.5). Physical neglect was reported by 58.9% of the sample closely followed by emotional neglect (55.4%). 46.4% of the sample reported physical abuse of significant levels, 44.6% reported being emotionally abused and almost a third reported being sexually abused (28.6%). DES-II (dissociation) scores were significantly associated with delusions and hallucinatory behaviour from PANSS. Emotional abuse and sexual abuse were significantly associated with dissociation scores. Mann Whitney

tests revealed that dissociation was significantly higher in the groups which reported childhood trauma. Kruskal-Wallis results indicated no significant differences between groups within the data and dissociation scores.

Conclusion: Patients with clinically significant levels of dissociative symptoms were identified. This indicates that dissociation is a key characteristic, warranting further consideration in this sample. Levels and severity of reported childhood trauma were higher than expected. The findings add weight and support to the importance of dissociation and trauma in formulations of male, mentally disordered offenders. Clinical implications of these findings are considered and further directions are discussed.

Chapter One

1.1. Introduction

1.1.1. Importance of the study

High levels of dissociation have been found in recent studies involving psychiatric inpatients (Sar *et al.*, 2010, Schäfer *et al.*, 2006 and Vogel *et al.*, 2009). Proponents of the ‘dissociative psychoses’ have suggested that trauma-focused intervention strategies can improve outcomes of patients with major mental illness (Read *et al.*, 2001, Read *et al.*, 2005, Sar, 2011 and Vogel *et al.*, 2006). Despite this, levels of dissociation have not been measured in forensic inpatients in Scotland. It costs on average £4,535 per patient, per week to be cared for within The State Hospital, a maximum secure psychiatric hospital for Scotland and Northern Ireland (personal correspondence, 4th March 2011). It is therefore important that the professionals working within these settings are providing evidence-based, cost-effective interventions to tackle the difficulties manifested by patients in forensic mental health care settings. It may be that there is a significant level of dissociation in this population which is being misdiagnosed or unrecognised, and opportunities to provide more cost-effective treatments are being missed (Timmerman & Emmelkamp, 2001). It is hoped that by investigating this issue, emphasis can be placed upon trauma histories and trauma-focused interventions as key strategies in the care and treatment of forensic mentally disordered offenders in secure hospital settings.

1.1.2. Statement of intent

This study examines the relationships between trauma, psychosis and dissociation within a sample of patients in forensic mental health settings. The hypothesis at the heart of this study is that clinically significant levels of dissociation will be found in the sample. It is theorised that the presence and severity of childhood trauma and the presence of psychotic symptoms will be associated with increased scores on a measure of dissociative symptoms.

1.2. Dissociation

1.2.1. The concept of dissociation

The concept of dissociation as a psychological process has been in existence for several hundred years. Pierre Janet (1859-1947) is often credited with describing this phenomenon for the first time (Van der Hart & Friedman, 1989). At the time of his work, 'hysteria' comprised disorders which we now understand as borderline personality disorder, post-traumatic stress disorder, and conversion disorders (APA, 2000). Janet was interested in hysterical conditions and used observation and experimental interventions such as hypnosis to bring about change in his patients. It was through this work that he discovered dissociation and put forward his view that this was the underlying mechanism present in all the hysterical disorders. In general, Janet provided descriptions of how people can differ in their perceptions of reality, how these perceptions can become disturbed, and how 'partial automatism' can enable parts of the self to split off from self-awareness and follow a subconscious development. Unfortunately, when hypnosis fell into disrepute, Janet's view of the importance of dissociation was lost. This also came at a time when Freud's popularity was increasing and he published some of his early psychoanalytic case studies (Van der Hart & Friedman, 1989).

Janet's ideas about dissociation developed from the work he did with hypnosis and his patients in Salpetriere. Hypnotherapy is recognised by the National Institute for Clinical Effectiveness (NICE) in the treatment for Irritable Bowel Syndrome. It is currently used for a growing list of conditions such as nausea caused by chemotherapy, phobias, depression, skin problems, chronic pain, and children with anxiety and pain in A&E. With respect to Janet's early research, there appears to have been a recent resurgence in the use of hypnotherapy as a clinical, effective and cost-efficient intervention, and discussions regarding its place in the NHS have intensified. Its use with conditions such as depression, pain, irritable bowel syndrome and smoking

cessation could become a formalised, cost-efficient and effective intervention, available to all in the near future. Modern clinicians and social scientists have furthered our understanding of Janet’s description of the role of dissociation in the development of psychopathology. Janet’s view of dissociation can help in understanding how complex trauma reactions can develop into psychosis. This study hopes to demonstrate that there are elevated levels of early trauma and high dissociation levels within forensic inpatients; if found, this would support a broader conceptualization of treatment strategies for patients with psychosis in forensic settings. It is a further hope of this study to add impetus to a change within modern psychiatry in which psychosis is no longer viewed as an insidious, life-long disease but rather as a previously misunderstood illness in which a degree of holistic recovery is entirely expected. For a review of the developments that have occurred since the works of Kraepelin and Bleuler, please see Frese *et al.*, (2009).

The following table outlines what is meant by the various terms used to describe dissociative mechanisms:

Table 1.1: An outline of terms used to describe dissociation in this thesis

<p>Dissociation – reflecting a continuum ranging from everyday experiences to extreme forms:</p>	<p>Dissociation is described as a partial or total disconnection between memories of the past, and awareness of identity and of immediate sensations. It refers to any “disruption in the usually integrated functions of consciousness, affect, memory, identity or perception of the environment” (APA, 2000, pp. 477). It is often the result of traumatic experiences, intolerable problems or disturbed relationships.</p>
<p>Dissociative processes and mechanisms:</p>	<p>Dissociative processes or mechanisms include depersonalisation, derealisation and amnesia. They can be used in response to stress, fear, and danger. They are often first used in early years, following prolonged stress during</p>

	traumatic experiences with overwhelming affect. This pattern of responding can continue into adulthood.
Dissociative disorders:	There are four dissociative disorders as described in the Diagnostic and Statistical Manual (DSM-IV-TR, APA, 2000). These indicate four conditions in Axis I which all involve dissociation. They are as follows: Dissociative Amnesia, Dissociative Fugue, Depersonalisation Disorder and Dissociative Identity Disorder. ICD-10 refers to them as Dissociative (Conversion) Disorders (F44). The ICD-10 seems to relate the conditions more to physical elements than the DSM: for example, ‘Dissociative stupor’ (F44.2), ‘Dissociative motor disorders’ (F44.4), ‘Dissociative convulsions’ (F44.5) and ‘Dissociative anaesthesia and sensory loss’ (F44.6). This version of the European classification system still refers to Multiple Personality Disorder (F44.81).
Dissociative symptoms:	Dissociative symptoms include many psychiatric symptoms such as auditory hallucinations, lack of grounding, lack of connection with self, others and the external world, problems with affect regulation, memory problems, hypervigilance and sensitive threat-systems, heightened anxiety and fluctuating low mood.

As we can see from the various types of definitive phrases used with respect to dissociation, it can be a process, a structure or a set of symptoms. As defined by the American Psychiatric Association (2000), dissociation as a disconnection from elements of our experiences can be a discrete and short-lived occurrence or it can become a pattern of responding to adversities.

Dissociative symptoms respond well to psychotherapeutic approaches, integrative processes and psychoeducational provision (Heide & Solomon, 1999; Kuft & Foote, 1999; Read *et al.*, 2005). This study intends to show that there are significant numbers of

patients within our secure psychiatric hospitals who experience difficulties in relation to trauma and dissociation.

The majority of research into dissociation has been conducted with females; however, traumatic and abusive experiences also affect a considerable number of men. Under-recognition of male trauma victims combined with a cultural gender bias makes it especially difficult for these men to receive help or understanding. Clinical researchers are interested in the manner in which gender differences may exist in reactions to early aversive experiences. However the research is inconsistent. Some evidence seems to suggest that there are no differences between men and women with respect to levels of dissociation (e.g. Sar *et al.*, 2010; Spitzer *et al.*, 2003). The clinical impression is that men who have suffered disrupted childhoods tend to act out and become hostile to others, defensive, angry and aggressive, focusing on externalising their inner pain and turmoil. Read *et al.*, (2008) suggested that these men were more likely to be found in forensic settings. Prison studies do show elevated levels of dissociation in male prisoners (Akyuz *et al.*, 2007; Timmerman & Emmelkamp, 2001). Women on the other hand may have a greater tendency to internalise their pain, experiencing low self-esteem and low confidence, act in hateful ways towards themselves, engage in deliberate self-harm using many different methods, suffer from anxiety and depression, and present in outpatient clinics where, arguably more research is conducted (e.g. Holowka *et al.*, 2003 and Kilcommons & Morrison, 2005). The implications of the early trauma for men and women may vary. Read *et al.*, (2008) cite an early study in which women who had been sexually abused were ten times more likely to end up with a diagnosis of psychosis, and this was not the same pattern found in men.

1.2.2. Structural Model of dissociation

Kathy Steele and colleagues suggested a ‘theory of the structural dissociation of the personality’ (2005) which attempted to further explain the factors associated with the complex-trauma reaction. It is a Janetian-based theory that uses research from the PTSD

literature as well as neurological research to explain theoretically how parts of the personality can become divided and the impact this can have on general functioning, resulting in dissociative symptomology. Structuralists maintain that as a response to traumatic events, divisions within the personality arise whereby emotional elements become ‘split off’ and form additional ‘parts’ within the self. These emotional parts (EPs) contain the overwhelming affect of the trauma and often remain fixated within the traumatic experience. The rest of the ‘self’ known as the Apparently Normal Personality (ANP) maintains a maladaptive process of avoiding reminders of the trauma, remains detached and can develop partial or complete amnesia for the traumatic events. An individual can alternate between these presentations with EP’s being present whenever the protective capacities of fight, flight, freeze, submit or attach are triggered. ANPs numbly continue with everyday tasks, seemingly unaware of their hypervigilant parts. To relate this to everyday functioning – the common example given is of driving along a familiar route. Our ANP is in control of the driving and rehearsed mechanistic manoeuvres whilst the EP is hypervigilant and can take over to swerve or stop the car if a sudden danger becomes present.

Critics of this model argue that it appears too focused on extreme forms of dissociation, specifically Dissociative Identity Disorder in which the dissociated structures exist as almost completely separated selves. Other critics maintain that trauma and dissociation are only correlated, but the model implies that trauma is the causative element in the development of dissociation (van der Boom *et al.*, 2010).

Freudian theorists describe dissociation in terms relating to psychological defences, where difficult experiences are repressed and are suppressed into unconsciousness. This view rejects any emphasis on dissociated *structures* within our mind, but describes a mechanism in which specific, anxiety-provoking thoughts, emotions, or physical sensations are separated from the rest of the self. Freud described dissociation in terms of a motivated repression of something unwanted (Dell & O’Neil, 2009).

1.3. Psychosis

The term psychosis is used to refer to a number of mental illnesses, each with a complex set of symptoms. Examples of psychotic disorders are schizophrenia, bipolar disorder, severe depressive episode with psychotic features, persistent delusional disorder, acute and transient psychotic disorder, schizoaffective disorder, mania with psychotic symptoms and other non-organic psychotic disorders. These disorders affect many people all over the world. The symptoms, which often manifest at the start of adulthood, can be terrifying, malignant, and long-lasting. A diagnosis of psychosis can be devastating, both to the patient and to the patient's loved ones. Under the umbrella term of 'psychosis,' these patients are a heterogeneous group of individuals and require skilful assessment and individualised care-planning in order to promote recovery.

Psychosis has been thought of as a life-shattering mental health condition; however, the work of the 'Recovery Movement' is aiding a conceptual change. The Recovery Movement has been developed by service-users and patients who themselves have had a diagnosis of major mental illness. It is based upon personal narratives and experiences of how individuals have recovered from their 'illnesses'. There are many ways to describe what recovery means to an individual. This is reflected in the National Institute for Mental Health in England's (NIMHE) document entitled 'Guiding Statement on Recovery' (Department of Health, 2005). This document puts forward the following as a definition of recovery from mental ill-health:

- 1) A return to a state of wellness (e.g., following an episode of depression);
- 2) Achievement of a personally acceptable quality of life (e.g., following an episode of psychosis);
- 3) A process or period of recovering (e.g. following trauma);
- 4) A process of gaining or restoring something (e.g. one's sobriety);
- 5) An act of obtaining usable resources from apparently unusable sources (e.g. in prolonged psychosis where the experience itself has intrinsic personal value);
- 6) To recover optimum quality of life and have satisfaction with life in disconnected circumstances (e.g. dementia).

Taken together, these six meanings suggest a broad vision of recovery that involves a process of changing one's orientation and behaviour from a negative

focus on a troubling event, condition or circumstance to the positive restoration, rebuilding, reclaiming or taking control of one's life, (NIMHE Guiding statement on Recovery, DoH, 2005).

Approximately 1% of people in the community are diagnosed with schizophrenia; however, Thomson *et al.*, (1997) carried out a descriptive study of patients in The State Hospital and reported a rate of 70% for primary diagnoses of schizophrenia. They found that a majority of individuals had experienced adverse events in childhood, and that psychotic symptoms continued to occur in many patients despite extensive treatment. There are strong arguments calling for the term 'schizophrenia' to be abolished, citing the lack of reliability and validity of the diagnosis and the detrimental impact of the stigma this label can cause (Romme & Hammersley, 2006).

Psychiatric and psychological systems have shaped the view of psychosis over the years. The term dementia praecox, formulated by Kraepelin in 1893, reflects early conceptions of psychosis as being a disease of the mind. A shift in the understanding of schizophrenia has more recently taken place, with the focus moving to a more inclusive understanding of the heterogeneity of the condition, and the term schizophrenia now becoming almost redundant. Schneider's work attempted to list the symptoms that made schizophrenia unique from other types of psychosis. Increasingly, however, Schneider's 'First Rank' symptoms are de-emphasised in classification systems like DSM (APA) and ICD (WHO).

Significantly, the Japanese have renamed their equivalent of schizophrenia, which in the Japanese language is translated as 'mind-split disease', to the new term meaning 'integration disorder' which refers to a syndrome based on the stress-vulnerability model originally proposed by Zubin and Spring (1977) (Sato, 2006).

Medical advances and the development of new antipsychotic medications have shaped treatment strategies for the psychoses. Given the complexity and broad range of symptoms involved in psychosis, psychotic disorders stimulate interest amongst

professionals. The pharmacological effects of neuroleptic and antipsychotic medication on these symptoms can be dramatic, which again creates interest. The authoritative nature of the medical model within forensic mental health services may have led to the prioritisation of psychosis over other co-morbid psychological dysfunctions.

However, proponents of a dissociative subtype of schizophrenia demonstrate evidence which suggests that some of the major symptoms of schizophrenia are trauma-based and that dissociative mechanisms are involved in development of psychosis-like presentations (Moscowitz & Corstens, 2007; Ross, 2004). This could see a return to Bleuler's (1908) work in which the idea of a split mind would become highly relevant once again. As Moscowitz describes in Chapter Three of his book (Moscowitz *et al.*, 2008):

Bleuler's model of the mind appeared...to emphasize much more 'vertical' splits (as in dissociation) [Janet] than 'horizontal' splits (as in repression) [Freud], and clearly incorporates a teleological element. (pp. 41).

As the DSM V committees continue to consider how to catalogue psychosis, PTSD and the Dissociative Disorders (DD's), research continues to highlight the similar mechanisms which lie at the heart of these complex manifestations. The roles of trauma and dissociation are highly relevant and could continue to shift the focus away from traditional bio-medical views in which drug treatments are the interventions of choice. This study hopes to provide evidence that more can be done in terms of the formulation and treatment of psychosis. This would supplement the effects of medication and provide more substantial interventions for the 70% of the forensic inpatient population who are diagnosed with psychosis.

1.4. Trauma

Psychological trauma is defined as a subjective experience of an objective event (Allen, 1995). It is the meaning of an event or series of events to an individual which can cause

psychological disturbance. The effects of traumatic events can be cumulative, relating to a number of factors such as the type, frequency and duration of the trauma, the nature of the interpersonal context it occurred in, the help received, and the resilience factors available to the person at the time and afterwards (Perry, 2001).

Terr's (1991) work suggesting Type I trauma (resulting from a single event like an assault, car accident or witnessing someone die) and Type II trauma (multiple exposures to extremely upsetting events, for example living within a household where extreme interpersonal violence takes place regularly, or being sexually abused on multiple occasions) was added to by Solomon & Heide (1999). They suggested a Type III trauma which would result from experiencing multiple traumatic events which were violent and occurred at an early age. Circumstances they describe include abuse beginning in early childhood which may have lasted for several years, was unpredictable, or involved force and multiple perpetrators including close relatives. They also mention threats being made to the child in order to keep the abuse a secret, such threats involving the torture or the death of a loved one. In describing the presentation of someone with type III trauma reaction, Solomon and Heide mention the common misdiagnosis of 'borderline personality disorder.' They suggest that PTSD symptoms can be a clue to deeper disturbance related to early trauma, which the individual may have little or no memory for, as well as for large parts of their childhood. Flashbacks and nightmares are commonly reported, depression, numbing, and as Lipschitz *et al.*, (1996) concluded, dissociative symptoms. Other indicators of severe and disruptive traumatisation include abusive relationship histories, possible substance dependency, history of injuries and severe headaches, and an entrenched distrust of others. Terr (1991) suggests that whilst some memory will remain in cases of type II trauma, it is more likely to be unclear and fragmented. Coping mechanisms used, especially in children, are more likely to include denial, dissociation or identification with the perpetrator and aggression towards themselves. Terr's work has been important in furthering the understanding of trauma reactions, as well as in the development of interventions which can be more specifically targeted, depending on the circumstances of the trauma (e.g. Prolonged Exposure, Foa,

1991). Solomon and Heide's paper describes the challenges for professionals in assessing survivors of type III trauma, but highlight the essential ingredients required to make a difference (1999).

Brewin *et al.*, (2000) identified a number of risk factors in the development of PTSD. These include past psychiatric history, childhood abuse (physical and sexual) and a family psychiatric history. People with severe mental illness also have a markedly elevated risk of exposure to trauma in their lifetimes following the development of a mental health problem – as a rule 50% of psychiatric inpatients and outpatients report sexual, mental or physical abuse at some time in their lives (Resnick *et al.*, 1993, Briere, 1992, Briere, 1997). Meusser *et al.*, (1998) reported that 98% of clients (both inpatients and outpatients) with severe mental illness have been exposed to trauma, with most experiencing multiple exposures. The rate of PTSD was 43%. However, of this 43%, only 3 out of 119 patients with PTSD (2%) had this diagnosis in their medical notes. This finding suggests that PTSD is a common comorbid disorder in severe mental illness but is frequently overlooked in mental health settings (see also Craine *et al.*, 1988 and Cascardi *et al.*, 1996). Given high rates of exposure to traumatic events among the mentally ill, it is logical to assume a higher rate of post-traumatic reactions among patients in forensic mental health settings.

In neurological terms, it is theorised that psychologically traumatic experiences produce excessive stimulation that overwhelm the capacity of the developing brain to process information efficiently. During the early years of life (typically between birth and three years), the brain is forming at its most rapid rate. Walker and Diforio (1997) discussed the neurological basis of the stress response in relation to the hypothalamus-pituitary-adrenal (HPA) axis. They discussed the manner in which over-arousal resulting from a traumatic stimulus leads to a neuroendocrine reaction which activates the supersensitive HPA axis reaction, in which the stress-response system becomes over-activated. Read *et al.*, (2001) provided evidence that the HPA axis can become

dysregulated and overactive due to trauma, and evidence of this can be found in children who have experienced traumatic events.

1.5. Theories and Models of the Interaction between Trauma and Psychosis

It is important to understand how traumatic experiences can continue to have significant repercussions for the individual throughout life, and how they might come to influence the development of psychosis. During childhood trauma, the elevated levels of cortisol on the developing brain appear to have long-lasting effects on the structural development of neurological pathways. This is something which researchers are continuing to investigate (Perry, 2001; Schore, 2002). The extent of long-term damage following early trauma depends on the nature, duration and interpersonal context in which the trauma occurred, as well as the nature and timing of any intervention received by the child (Perry, 2001).

Childhood trauma is especially detrimental to an individual due to the important critical periods during development. Critical periods refer to windows of time in which the child has to fulfil specific tasks that enable them to continue development in a normal, healthy manner (Bornstein, 1989). Bowlby's (1958) work on attachment highlighted the importance of bond formation between child and care-giver. It also showed what can happen if these reciprocal patterns are unstable, disorganized, and lack nurturing and warmth.

Childhood trauma as a result of abuse is frequently the catalyst for ongoing mental health-related problems in adulthood (Perry, 2001). Statistics about trauma and adult mental health issues make shocking reading. The impacts of trauma are far-reaching, touching every part of survivors' lives. Social problems such as homelessness, physical manifestations such as self-harm and eating disorders and personal and emotional difficulties in forming healthy relationships are all possible outcomes (Putnam, 2006). Affective instability is common, with sufferers predisposed to extreme stress reactions.

Emotional and physical neglect can interrupt the development of singular or multiple structures of the brain, dependent on the age of the child. In the absence of external regulation (which would usually come from a primary caregiver), there is an increased likelihood that problems will develop with respect to executive functioning and behavioural problems due to difficulties in affect-regulation (Glaser, 2000). In cases of emotional and physical neglect, victims can lack social skills, which reduce resiliency and their ability to seek out appropriate personal support. Life transitions often occurring in adolescence and during the process of individuation can be particularly stressful; this is a common time for the emergence of a psychotic illness.

The Neural Diathesis-Stress Model (Walker & Diforio, 1997) highlighted neurological patterns in the brains of people with schizophrenia and concluded that in order to understand the causes of schizophrenia in an individual, it was important to identify the person-specific characteristics that create sensitivity to stressors. John Read, Bruce Perry, Andrew Moskowitz and Jan Connolly produced their response to this in 2001, demonstrating that ‘irregularities’ are commonly found in the brains of children who have been systematically abused. They explained how early abuse directly affects the development of the stress system in the brains of children, which sets up conditions which can contribute to problems with regulating affect and reality-testing when under stress as an adult.

The ‘Traumagenic Neurodevelopmental’ model (Read *et al.*, 2001) essentially makes connections between the effects of traumatic events on the developing brain, and biological irregularities found in people with psychosis. This is an important model for it draws together the work of many researchers in this field and presents a well formed model integrating psychosocial environmental factors with ‘endogenous’ pathways to psychosis. For a theory to meaningfully describe how early traumatic experiences can lead to the development of a psychotic illness years later, it must involve both psychological and biological processes.

The impact of trauma as a causal factor or trigger to the psychosis paradigm has received substantial attention in recent years. It appears that the connection between trauma and psychosis has now been firmly established, with researchers linking this to the impact of elevated levels of stress and anxiety (Bentall and Fernyhough, 2008). Bentall & Fernyhough (2008) describe a specific pathway in which insecure attachment and traumatic experiences in early years lead to the development of low self-esteem and an externalising explanatory bias. This in turn gives rise to hypervigilance and an overdeveloped threat-system that can aid the development of paranoid beliefs.

Traumatic events can impact on memory and cognitive processes (Moscowitz & Nadal *et al.*, 2008; Terr, 1991). These processes are often also affected in patients with psychosis (Achim *et al.*, 2007). Due to the overwhelming nature of trauma, the processing of traumatic material appears to involve complicated processes in the brain. The more vulnerable a person is to this kind of stress, the harder it can be to remain resilient and unaffected.

A cognitive model of PTSD was described by Ehlers and Clark (2000). Their model for PTSD uses a cognitive basis to explain the persistent nature of symptoms resulting from trauma. They report that victims of trauma create 'excessively negative appraisals' of the trauma. Furthermore, that by failing to focus on the context, and avoiding, where possible, all opportunities to discuss their experiences, they create disturbances in their autobiographical memory of the event. They suggest that the manner in which the trauma is processed leads to a feeling of real and current threat. It is this aspect of the presentation, they suggest, which maintains the hyperarousal, avoidance and intrusive symptoms. With respect to the development of psychosis, Mueser *et al.*, (2002), cited in Kilcommons and Morrison (2005) suggest a model in which they describe PTSD as having direct and indirect influences over the development of psychosis. They state that the direct effect comes from specific symptoms of PTSD such as avoidance, hyperarousal and re-experiencing, and the indirect effects arise from the common consequences of PTSD such as substance abuse, interpersonal problems and re-

traumatisation. Specific symptoms of psychosis, for example hallucinations and delusions, have been linked to cognitive misattributions and source-monitoring errors likely caused by atypical thinking-styles set up following trauma in childhood (Read, *et al.*, 2008).

The experience of developing a psychotic disorder can in itself be traumatic. Shaw, McFarlane and Bookless (1997) suggested that the experience of psychosis has the capacity to confront an individual with horror, fear and helplessness (criterion A event) and can thereby create the same pattern of symptoms as follows real events. Their study found a high prevalence of PTSD symptoms as part of acute stress response in patients recovering from psychosis. White and Gumley (2009) found a rate of 37% for post-psychotic PTSD in their sample of patients with schizophrenia. Although this was a small sample (n= 27), they found that associations could be made between post-psychotic PTSD and fearfulness of the psychosis symptoms recurring, difficulty with coping with the uncertainty of when symptoms might recur, and negatively evaluating experiences of paranoia (White and Gumley, 2009). It would seem sensible to make attempts to replicate this study to see if these findings are generalizable across inpatients with psychosis. Shaw *et al.*, (2002) investigated a mixed-gender sample of 42 patients in psychiatric hospital settings, for indications of post-psychotic PTSD (PP/PTSD). They found that 52% of the individuals in their sample met the criteria during a structured diagnostic interview. They also highlighted that the use of antipsychotic medication in those with and without PP/PTSD indicated that the medication had insignificant effects on trauma symptomology. A further element to this study was that a high level of distress across patients with psychosis was found. Shaw *et al.*, (2002) suggest that this indicates that the distress caused by psychosis “causes substantial secondary morbidity” (pp. 45). The continued finding that the experience of psychosis is traumatic supports the principle that the careful assessment of trauma symptomology is essential and that formulations should include these difficulties when making sense of the psychosis (Read, 1997; Read *et al.*, 2001; Read *et al.*, 2005; Schäfer *et al.*, 2006). The population discussed in this study is likely to have fewer protective factors and therefore will have

lower resiliency compared with normal controls in the community. Kilcommons and Morrison (2005) examined traumatic experiences in 32 outpatients with diagnoses of psychotic-related disorders. They looked for associations between specific traumas and psychotic symptoms, and they also measured associations between dissociation and psychosis. They used the Positive and Negative Syndrome Scale (PANSS: Kay, *et al.*, 1987), the Dissociative Experiences Scale (DES: Bernstein and Putnam, 1986), and Trauma History Questionnaire (THQ: Mueser *et al.*, 1998). They found that physical abuse was associated with positive symptoms of psychosis and that sexual abuse had a specific relationship with the 'hallucinations' item on the PANSS. This study also found a significant relationship between dissociation and PANSS positive items, specifically hallucinations. Kilcommons and Morrison's findings relate to Read's earlier review (1997), which claimed that the consistent finding of high rates of trauma exposure adds weight to suggestions that detailed trauma histories must be taken and PTSD symptoms should be taken seriously (Read, 1997; Read *et al.*, 2001; Read *et al.*, 2005; Schäfer *et al.*, 2006).

Morrison *et al.*, (2003) carried out an extensive review of work on the relationship between trauma and psychosis. This objective and clear account highlights the complexity of this area but provides a useful overview. They highlight that there are many important factors involved in the development of PTSD and psychosis, and various pathways to the manifestation of these difficulties. However they point out that there do seem to be significant numbers of individuals developing a psychosis where trauma is likely to be the root cause.

In summary, traumatic events can affect brain development, and in this way can create vulnerabilities to emotional regulation difficulties. Extreme trauma in childhood can cause complex PTSD. Symptoms of PTSD overlap with symptoms of psychosis and are often maintained through cognitive and behavioural reactions. Additional stress and adversity along with existing vulnerabilities and a hyperaroused stress system could create conditions for psychosis development. Psychosis can emerge as a reaction to

trauma (Ellason & Ross, 1997; Read, 1997). Multiple studies have recorded high rates of trauma in patients with psychosis (Kilcommons & Morrison, 2005; Schäfer *et al.*, 2006; Vogel *et al.*, 2006). Read *et al.*, (2008) presented evidence that people with traumatic histories are more likely to have earlier admissions to hospital, have more complicated psychiatric presentations and are more likely to attempt suicide. Furthermore, the experience of developing psychosis and all that it entails (e.g. medication, hospitalization and stigma) can give rise to a post-traumatic reaction (Shaw *et al.*, 2002; White & Gumley, 2009).

1.6. Theories and Models of the Interaction between Trauma and Dissociation

This section outlines how dissociation might contribute to the interaction between trauma and psychosis, namely how the trauma reaction can be maintained by dissociative processes, and how trauma can cause the development of dissociative symptoms. As we develop our understanding of the impact early traumatic events can have on the developing brain, implications arise relating to understanding serious psychopathology in adulthood (Perry, 2006). The proposal to use the forthcoming DSM-V to more fully represent trauma-related difficulties, including psychosis, demonstrates advances we are making in linking the neuropsychobiological processes (involving the hippocampus, amygdala, limbic system and stress centres of the brain) with the clinical picture of varying psychotic presentations. Disrupted attachments and traumatic events are common in the histories of patients in forensic mental health settings, thus ensuring the relevance of these investigations in this clinical population.

Several authors have written about dissociation and trauma from an attachment perspective (Liotti, 1999 in Sachs & Galton, 2008; Sinason, 2002) and specifically discuss how traumatic relationships and disrupted attachments during early years can create a disorganised attachment pattern. This is relevant because of the theorised links

between disadvantages in early life, subsequent attachment patterns, dissociative mechanisms and violent crime (Moscowitz, 2004).

Bowlby (1958) demonstrated that the ultimate goal of attachment behaviour is to discover an integrated system with which to organise the self, in order to grow, learn and develop. The manner in which the infant begins to learn and develop depends upon the nature of the attachment figure. If the child has no secure base to organise itself around (as in a disorganised attachment pattern –Main & Solomon, 1986), this can lead to a disintegrated and fragmented sense of self and others. A disorganized attachment pattern results from a situation in which inconsistent reactions of parent figures and experiences of fear leave a child with a lack of safety and no understanding of what is secure.

Disrupted attachment patterns such as ‘disorganized’ attachment style are believed to have an adverse effect on the way we learn to cope with stress (Schoore, 2003). The manner in which this form of attachment evolves can in itself be a traumatic experience for a young child. Disorganized attachment is commonly associated with children who have grown up in environments in which their caregivers have failed to be the source of safety and security, and instead have often been the source of fear and violence; it is also often associated with dissociative reactions (Sinason, 2002). As a result of this type of attachment, as the child grows up, they are unable to organise themselves around their environment, their sense of the ‘self’ is disorganised, and this can lead to a defensive *detachment*. Bremner (1999) conceptualized dissociation as representing one of two routes in the response to acute stress; the second route relates to hyperarousal, hypervigilance and intrusions. Bremner theorised that dissociation relates to a pathway in which high dissociation leads to a suppression of responses from the stress centres of the brain (Bremner, 1999). In support of this model, Schoore (1994, 2003) described a neurobiological process which leads from extreme trauma to dissociation as a bodily ‘shutting-down’ response. Furthermore, Koopman *et al.*, (2004) found physiological evidence in support of Bremner’s theory, when they demonstrated that increased scores

on a measure of dissociative symptoms led to a lower mean heart rate when individuals were asked to report their most stressful life event.

Traumatic experiences can contribute to neurodevelopmental difficulties with regulating emotion and disrupted attachments can contribute to a fragmented understanding of the ‘self’ and the external world. Dissociation resulting from trauma can add to this picture. Allen *et al.*, (1997) suggest that dissociative detachment (or depersonalisation) can undermine an individual’s sense of ‘grounded identity,’ which interferes with reality testing. They add that dissociation affects one’s “internal anchors” – a sense of being connected to one’s body, a sense of self or identity, an awareness of own actions and locus of control. This detachment found in people with dissociative disorders (see Table 1.1 on pp. 12-13) can also cause severe confusion, concentration problems, disorientation, and disorganization. It is easy to see how this overlaps closely with symptoms used to diagnose schizophrenia and other psychoses. Emotional regulation can be seriously altered following trauma and this can have a marked impact on reality testing – this in turn can become a factor in the development of psychotic symptoms. This study hopes to explore these similarities and overlapping symptomology in more detail.

The hippocampus is an important structure within the brain because of its role in taking in new information and dealing with memory of recent events. A study involving monozygotic twins discovered that larger hippocampal volume (when examining the identical twin without PTSD) may be a significant resilience factor for either not developing PTSD or for successful recovery from PTSD (Apfel *et al.*, 2011). Stress early in life affects how effectively the hippocampus functions as well as how active the neuronal networks are that respond to danger. The effects of childhood trauma may therefore affect the development of the hippocampus, and smaller hippocampi continue to compromise resilience in adulthood (Apfel *et al.*, 2011). A recent review by Woon, Sood and Hedges (2010) found that trauma exposure on its own can cause a reduction in the volume of hippocampi without a PTSD diagnosis. A reduction in volume of

hippocampi can lead to poor memory functioning, cognitive impairments and secondary damage to the amygdala and related ‘empathy circuits’ (Baron-Cohen, 2011). This is perhaps worth considering when working with mentally disordered offenders, many of whom may have secondary diagnoses of personality disorder (PD), or traits of PD. Within our brains, when the stress-response system (involving the HPA axis) is repeatedly called into action, in the case of Types II and III trauma (Heide & Solomon, 1999; Terr, 1991), our bodies adapt and learn to live in a constant state of hyperarousal and remain prepared for ‘action’. The accompanying traits of irritability, scanning for danger, distrust and difficulty sleeping are usually also present. A recent study has linked stress and childhood trauma to HPA-axis hyperactivity prior to the onset of first episode of psychosis (FEP) (Mondelli *et al.*, in press).

Memories for traumatic events are qualitatively different from memories for everyday events. The process of their encoding, storage and the intrusive quality of how they can be re-experienced is a well-known feature of the traumatic stress reaction. The stress produced and subsequent high levels of cortisol and noradrenaline mean that when young children experience the pain and fear of extremely terrifying events, the hippocampus goes ‘offline’ and refuses to take in the information as it would if the event were neutral. The emotion-laden memory is not filed away in the usual manner and is thought to be essentially ‘stuck’ (Moscowitz & Nadal *et al.*, 2008). In particular this inappropriate filing allows the affect connected to the memory to recur as intrusive sensations, but also as flash-backs, intrusive images during the day and as nightmares during sleep (Van der Hart *et al.*, 2006). Van der Kolk and Van der Hart note that:

hyperarousal causes memories to be split off from consciousness and to be stored as visual images or bodily sensations. Fragments of these ‘visceral’ memories return later as physiological reactions, emotional states, nightmares, flashbacks or behavioural re-enactments (van der Kolk and van der Hart, 1989).

Excessive traumatic stimulation sensitises neuronal circuits, in a sense enhancing natural in-built stress responses (fight/flight/freeze). It literally strengthens the body’s

response to perceived danger and encourages fragmentation and dissociation. This hypersensitivity to threat can become ‘hard-wired’ and can lead to classic hyperarousal symptoms and potentially a cognitive bias towards interpreting something safe as being threatening. With all the evidence presented above, the manner in which paranoid delusions can arise in an individual whose threat system is repeatedly and erroneously triggered becomes more understandable within the context of traumatic experiences and dissociative processes.

It has been suggested by some authors that hyperactivity of the noradrenergic system in hippocampal and amygdala centres of the brain could explain many symptoms of PTSD including heightened startle response, autonomic hyperactivity, emotional lability, irritability, fear, aggression and intrusions such as flashbacks and nightmares (Perry & Pollard, 1998). Another key component of PTSD is avoidance. Avoidance of the trauma-related stimuli leaves the individual prone to withdrawal and isolation and therefore less able to reality-test or to seek social support. This adds to the potential for greater psychopathological distress.

Abuse-related trauma is described in the DSM-IV-TR (APA, 2000) as a possible etiological factor for several of the dissociative disorders. Adversities in childhood and abusive crimes committed against children are now acknowledged to be frequent in all societies. Once remaining hidden, the truth is coming increasingly to the fore as a result of the emergence of support groups and critical incident reviews, in addition to criminal charges being brought against perpetrators of child abuse and neglect. Health policies such as *It's everybody's job to make sure I'm alright* (Scottish Government, 2002) go some way to highlighting the role each member of society has in protecting children from abusive environments. The document *Working together to safeguard children* (DoH *et al.*, 2006) includes an important aspect in its definition of child protection in which the phrase “promoting welfare” is included. This means that it is important not only to respond when there is an incident but to maintain standards of practice that aid growth, recovery and positive development for all children. Along with the realisation

that this is happening within our families, cities and towns, the research begins to show just what damage is being done.

However, this etiological significance between early trauma and the development of a dissociative disorder remains controversial (Poythress *et al.*, 2006). Not all people with extreme abuse histories develop dissociative disorders, although it could be argued that instead they are diagnosed with borderline personality disorder or schizophrenia. The controversy remains on the theoretical level because research has not yet fully explained how and where the connections between early abuse-related trauma and dissociation are formed. However, with advances in neurological science and scanning techniques in addition to developments within the biopsychosocial model, we are getting closer. It is likely that it is not a simple model, and that complex factors are involved. This is due to the fact that not everyone who experiences extreme abuse develops a dissociative disorder. From what we know about dissociation and the spectrum of associated behaviours it might be that a history of abuse would predispose an individual to responding in a dissociative manner. It may also be related to the severity, duration and intensity of the trauma, the victim's beliefs about the trauma, and how it is resolved (Perry, 2001).

Disagreement abounds in the literature over which types of abuse in childhood have greater links to dissociative symptoms. Some studies show that invasive sexual abuse from an early age is linked to high levels of dissociation (Kirby *et al.*, 1993 and Chu *et al.*, 1999). Other studies like Zweig-Frank *et al.*, (1994) found that sexual trauma and dissociative symptoms were unrelated. This result may have been erroneous however as many clinical studies show strong associations between traumatic events (particularly traumatic events taking place in early childhood) and dissociative symptoms (Akyuz *et al.*, 2007; Vogel *et al.*, 2006). For example, inpatient studies show that physical abuse (Sar *et al.*, 2010) and physical neglect (Sar *et al.*, 2010; Vogel *et al.*, 2009) best predict dissociative symptoms.

To summarise this section, the growing amount of clinical data, particularly from psychiatric patients (inpatients and outpatients) that highlights the interaction between trauma and dissociation, enables us to decisively state the importance of the careful assessment of a person's past experiences, particularly if psychosis is mentioned (Morrison *et al.*, 2003; Read *et al.*, 2005; Read *et al.*, 2008). If the works of Bremner (1999) and Schore (2001, 2003, 2008) are followed, dissociative processes can often be found as one route following trauma. From what has been described in the section above, but also from classification systems such as DSM (APA) and ICD (WHO) there is a core group of symptoms which overlap in PTSD, DDs and within psychoses (for example, hyperarousal, hallucinations and low mood). Similarly there are some common external factors which can be associated with the three disorder clusters, e.g. substance misuse, long-standing, extreme relationship difficulties, and avoidant behaviours. Trauma-focused treatment frameworks have been developed (Herman, 1992; Foa *et al.*, 1991; Perry, 2006; Steele *et al.*, 2005) which have been proven to be effective and cost-efficient and can be applied (within certain parameters) to PTSD, DD and psychoses. Therefore if traumatic roots to presenting symptoms can be genuinely identified and treated, it is likely that instances of 'psychosis' will reduce. This could lead to greater participation in psychological treatments for patients, an improved sense of locus of control over one's mental health, reduced hopelessness and a greater understanding of themselves.

Whilst patients in forensic mental health settings are not a homogeneous group, the amount of compelling research demonstrating the high levels of trauma experienced by these people supports the argument for improving the implementation of trauma-based strategies as well as strongly arguing that we need to be assessing for trauma-based symptoms at the beginning of treatment (Read *et al.*, 2005; Read *et al.*, 2008). Whilst this study is not suggesting that trauma is the root cause of all psychotic presentations, it could be for many more people than services currently account for.

1.7. Theory and Models of the Interaction between Psychosis and Dissociation

Dissociative symptoms are common among psychiatric inpatients, with some studies giving a prevalence of up to 25% (Saxe, *et al.*, 1993). Ross (1997) commented that men with dissociative symptoms are more likely to engage in antisocial behaviours and are therefore more likely to be found in secure psychiatric hospitals. Timmerman and Emmelkamp (2001) showed greater levels of dissociation amongst their prison sample when compared to a forensic hospital setting.

1.7.1. Overlapping Symptoms – dissociation and psychosis

It is important to point out that all studies undertaking an investigation into dissociative symptoms within a population with high levels of psychosis, such as this exploratory study, are going to be complex. This is due to the overlapping clinical presentations. Dissociative symptoms can easily be interpreted as psychosis. Schneiderian symptoms (which are typically associated with schizophrenia) have been reported to occur in higher frequencies in people with dissociative disorders than for schizophrenia (Ellason & Ross, 1997; Ross, 2004). It is not the case that symptoms such as delusions of being controlled by an external force, auditory hallucinations such as voices commenting, or thought insertion are specific to psychosis and distinguish this major mental illness from any other. It is now encouraged that Schneider's 'First-rank' symptoms are de-emphasised in diagnostic systems. The DSM-V schizophrenia committee is recommending that auditory hallucinations – a common symptom in DD and schizophrenia – be de-emphasised in the future diagnostic criteria for schizophrenia. In this regard the time is right for a consideration of our current knowledge about the overlap between DD and psychosis.

Moscowitz and Corstens (2007) argued that auditory hallucinations should “under no circumstances be considered a psychotic symptom despite the fact they sometimes occur in the context of a psychotic disorder”. Their arguments cover the historical context of

hearing voices but also more recent studies highlighting the extent to which non-psychiatric patients also experience auditory hallucinations. They claim that auditory hallucinations experienced by somebody with a diagnosis of schizophrenia cannot be distinguished from those that are experienced by a person with no contact with the mental health system. Moscowitz and Corsten's article (2007) reminds the reader that neither Kraepelin nor Bleuler cited auditory hallucinations as central features of their psychotic descriptions. It was Schneider who in 1959 influenced the APA and subsequently the early DSMs. Hearing voices became a pathognomic symptom, meaning that only one symptom was required for a diagnosis, in relation to schizophrenia. However, interestingly the specific link between external auditory hallucinations and schizophrenia was removed for the fourth edition of the DSM (APA, 1994), presumably due to lack of evidence. A recent article in the new journal *Psychosis* (which receives none of its funding from drug companies) discusses the influence of Hollywood productions for continuing the notion that psychotic hallucinations are visual. Cullberg (2011) maintained that "visual hallucinations are not typical for psychoses" (pp.160). Importantly, Cullberg makes the distinction between visual hallucinations and what he calls 'illusionary delusions,' in which a delusion is merely expressed using descriptive terms, e.g. 'my mother's face changed into a vicious devil.' He concludes that where there is evidence of a clear visual hallucination, any psychosis diagnosis should be questioned.

1.7.2. Dissociative Psychosis

In 2004, Colin Ross's investigation of dissociative symptoms and psychosis led him to develop the idea of a dissociative subtype of psychosis. This is envisaged as a fundamentally different type of psychosis warranting a different emphasis on the treatment and interventions given. Ross and Keyes (2004) discussed a dissociative subtype of schizophrenia, allowing them to distinguish between post-traumatic mechanisms in the development of psychosis.

Ross's dissociative subtype of psychosis refers to a symptom profile of psychotic and dissociative symptoms with a traumatic aetiology. It is separate from endogenous subtypes of schizophrenia in that the positive symptoms can be understood by examining the traumatic history of the sufferer (Ross, 2004). For example, symptoms displayed may include command hallucinations to self-harm, experienced as the voice of the abuser, or voices commenting in the voice of the abuser, reiterating threats or comments made during the abuse (Read & Argyle, 1999). Some of these experiences can be understood to be memory fragments from unprocessed trauma, which can develop into delusions (van der Kolk & van der Hart, 1989). Patients with a dissociative subtype of psychosis can also be identified by other characteristics such as their reduced response to neuroleptic medication. Broadly, Ross (2004) argues that, at best, antipsychotic medication only has a modest effect on symptoms compared with placebo, and only for a small sub-set of patients who tend to be compliant, have little or no history of psychological trauma and little co-morbidity with other Axis I disorders. He highlights many concerns with drug trial studies which seem to show significant improvements on symptoms of psychosis, but under closer scrutiny, appear to show very little actual improvement (Ross, 2004). In particular, Ross (2004) highlights the use of Clozapine – a second generation antipsychotic which is usually only used once a patient has not responded to at least two other conventional antipsychotic medications. He warns that Clozapine, which can have life-threatening side-effects and requires careful monitoring of the patient, may be more likely to be used in patients with a trauma-based psychosis because they are considered to be 'non-responsive' to other drug-treatments. Patients with a dissociative psychosis are likely to experience fewer negative symptoms of schizophrenia, demonstrate less psychobiology of endogenous schizophrenia, and demonstrate a greater response to psychotherapy (Ross, 2004). However, the clinical picture remains complex and investigations remain ongoing.

Several recent studies have attempted to investigate early trauma and dissociative symptoms in people with major mental illness. For example Holowka *et al.*, (2003) acknowledged the link between dissociative symptoms in patients with psychosis and

noted that it was often accompanied by early traumatic experiences. They further investigated the link between childhood trauma and dissociation by administering the CTQ (Bernstein & Fink, 1998) and the DES (Bernstein & Putnam, 1986) to 26 outpatients with schizophrenia. They found that dissociation significantly correlated with emotional abuse and physical abuse. They stressed the importance of considering the link between dissociation and psychosis, highlighting the similarity of the symptoms and evidence of misdiagnosis. This study also pointed out research showing that past traumatic experiences are rarely investigated and PTSD is not commonly ruled out in patients with major mental illness (e.g. Butler *et al.*, 1996).

Kilcommons and Morrison (2005) added credibility to Ross's (2000) suggestion of a dissociative subtype of schizophrenia. Using 32 outpatients with psychotic diagnoses, they investigated associations between specific traumas and psychotic symptoms. They found that sexual abuse and dissociative processes were significantly correlated with hallucinations (using the PANSS - Kay *et al.*, 1987). They also found a positive association between physical abuse and positive symptoms of psychosis. Kilcommons and Morrison conclude that it is important to screen for dissociative symptoms in a population where psychotic diagnoses are common.

Two German studies involving inpatients with schizophrenia investigated the impact of trauma on psychosis. The first, Vogel *et al.*, (2006) specifically looked at the role of traumatic experiences in post-traumatic symptoms, dissociative experiences and general psychopathological distress. They also compared the DES scores from the inpatient sample with non-clinical controls. They found that dissociation scores were higher in the inpatient group compared with their controls, regardless of traumatic history. In patients with post-traumatic symptoms, they found a much greater level of psychopathological distress, indicating that a trauma added symptom complexity to the presentation. In the second study (Vogel *et al.*, 2009) they discussed how different aspects of childhood trauma (specifically neglect) may “substantially contribute to a dissociative shape of psychosis” (Vogel *et al.*, 2009, pp. 2). Importantly they pointed out that dissociation in

adults has been associated not just with childhood trauma (usually abuse), but also, solely with general psychopathological distress. In particular their results highlighted that the presence of childhood physical neglect was associated with high dissociation scores but that other abuse categories (using the CTQ - Bernstein & Fink, 1998) were not. They therefore suggested that dissociation could share a specific relationship with physical neglect in childhood, in people diagnosed with schizophrenia.

A recent Turkish study (Sar *et al.*, 2010) using a mixture of 70 inpatients and outpatients all with a diagnosis of psychosis, found that physical abuse and physical neglect both predicted dissociation in their sample. Their results supported the 'dissociative psychosis' hypothesis.

1.8. Offender populations

For the minority of individuals who commit violent crimes under the influence of psychosis, psychiatric care within secure hospitals is often the system which best provides care and treatment and meets their needs. Within secure hospitals, these patients receive care and treatment as well as measures which hope to assess and manage their risk. They remain in secure settings until such time as their Clinical Teams agree that they are well enough to move on either to a different hospital offering lower levels of security, a return to prison to complete their sentence, or to be released into the community (with relevant supports in place). In this way if their mental health can be stabilised, managed and treated the individual has a much better chance of living safely in the community again. The role of mental health professionals in this process is therefore crucial, especially with respect to correctly identifying factors associated with offending, managing risk effectively and using cost-effective treatment strategies to improve mental health and reduce recidivism. This group of people is heterogeneous with varying presentations, life circumstances and offending histories. However, it is often general psychopathological distress relating to their mental health difficulties which unites them in some way. They are often vulnerable and require high levels of

nursing care (Thompson *et al.*, 1997). This section illustrates why this forensic hospital population in Scotland is worthy of attention based on the themes already covered in this introduction.

In relation to disorganized attachment styles, Sachs (Sachs & Galton, 2008) theorises that when a child grows up in a context in which feelings of insecurity, threat and confusion are constant, long-term effects can be set in motion. She suggests that these circumstances become familiar and that a child growing up in these conditions could learn to feel reassured by and thus *seek out* situations in which they feel like this as a way of achieving the familiar base. Those with a secure attachment pattern may associate a mother's lullaby with security and love. However, those with disorganized attachment patterns may associate violence and pain with love and security because they know no different. In this way one can extrapolate the model and make some attempts at understanding gang-culture as a young person's attempt at replicating a situation in which they feel safe and secure, by engaging in anti-social and violent acts to receive praise and sense of inclusion from other members. Early offending, thrill-seeking and risk-taking could also fit here with behavioural patterns which set up the physiologically familiar response of threat, fear and adrenaline. Sachs' idea is that if conditions are right during formative years, an individual is more likely to seek out experiences which replicate these familiar feelings in order to gain some sense of security.

A common reaction to trauma, especially in PTSD, is a compulsion, to not only relive the trauma, but also to re-enact it (van der Kolk *et al.*, 1991). This sometimes compulsive need to re-enact the trauma from the past is itself a dissociated process. Information-processing models of trauma supported by neurological evidence tell us that the essence of a traumatic event is its propensity to overwhelm structures within the brain and cause a disintegration of memory systems (Mollon, 2002). That is, the event is unable to be processed fully in the same way that an emotionally neutral event can be. This leaves the individual unconsciously repeating the trauma, usually in highly symbolic ways, as a method of enabling the mind to appropriately process the original

problematic trauma memory. This could be highly important when considering risk assessment of mentally disordered offenders who have committed a violent traumatic offence in the presence of psychosis, believing that they were under severe threat at the time. The prevalence of trauma is regularly reported within psychiatric populations (Read *et al.*, 2005). This trauma often stems not only from past experiences but also the trauma of the index offence itself; often in homicides committed by people with psychosis, the victim is often someone close to them. Understanding and coming to terms with mental illness as well as the crime which has been committed becomes a crucial element in psychological therapy during a patients' recovery.

This study hopes to show that a proportion of patients in secure hospitals across Scotland are experiencing dissociative reactions which are not presently being addressed. It will argue that the inclusion of trauma-based formulations and a heightened awareness of dissociative symptoms could improve treatment effectiveness and increase the speed of recovery for a significant number of patients within secure forensic hospitals. This could also improve the risk assessment process and enable them to move on to live in the community with greater success, and thereby reduce recidivism.

1.8.1. Trauma & Offenders

Several studies have undertaken research involving male inpatients with diagnoses of schizophrenia and related conditions, (e.g. Vogel *et al.*, 2006; Vogel *et al.*, 2009); however, populations of secure forensic hospitals do not seem to have been involved in such studies. Kilcommons and Morrison (2005) comment on the lack of research focusing on the link between trauma, dissociation and psychosis despite the high rate of trauma found in people with psychotic presentations.

There are various models which try to explain the potential route from abused to abuser, the physically abused to the violent offender. Moscowitz (2004) described how long-term dissociative processes could predispose an individual to committing acts of

violence. He proposes that four types of homicide offenders can be identified and describes ways in which dissociation can be linked to their development. Moscovitz argues that specific types of dissociation can be involved as follows:

1 – Violent offenders with Dissociative Identity Disorder (DID) in which the violent acts are carried out by a dissociated Emotional Part of the personality (EP – refer back to discussion on Structural model of dissociation, Steele, Nijinhuis and van der Hart).

2 – Violence triggered by fantasy-proneness also accompanied by identity alteration.

3 - Moscovitz describes “dissociative rage” in which an individual usually characterized as mild, quiet and overcontrolled, and acts impulsively with high levels of violence.

4 - People with high psychopathy scores where emotional numbing may stem from early traumatic experiences with additional links to depersonalization disorder.

In this paper Moscovitz (2004) emphasises that people working with individuals who have committed violent offences should carefully assess for dissociative disorders. He notes that usual ‘anger management’ style treatment protocols may not be successful in reducing the risk of further violence, especially if the state in which the violence was committed is not the state which presents to treatment sessions. He suggests that dissociation-based treatment could be more effective in reducing risk of recidivism. In 2005 the International Society for the Study of Trauma and Dissociation (ISSTD) produced guidelines for the treatment of Dissociative Disorders in Adults. It is beyond the scope of this project to discuss the treatment guidelines in detail, nevertheless they are available and comprehensively written, having received input from several respected professionals working in this area (ISSTD, 2005).

Moscovitz’s (2004) model requires presentation of clinical data with rigorous methodological and ethical procedures in order to provide substantiation to his proposed ‘types’ of offenders. He acknowledges that the four offender styles he describes may not be mutually exclusive however his paper discusses them as discrete profiles. His focus on homicides specifically appears to be a rather narrow focus, the reason for which is

unclear, especially when discussions around broader violent behaviour would perhaps be useful. Nevertheless he opens up debates relating to the overlap of psychosis and dissociation into the forensic arena which may provoke further research into dissociative processes within mentally disordered offenders.

This study is concerned with the manner in which male offenders of violent crimes, with additional mental health problems, are likely to present in hospitals. It is hoping to highlight that an understanding of the links between childhood trauma and dissociation can improve the understanding of presentations involving hyperarousal, paranoia, profound distrust, low self-esteem, extreme reactions to perceived provocation (especially if it appears to threaten self-esteem), and an over-sensitive threat system, all within a context of violent episodes.

1.9 Justification of the study

Whilst most professionals are likely to state that there is a large degree of trauma experienced by many detained patients, the actual prevalence and the level of distress resulting from these experiences is an unknown quantity. These factors are not routinely asked about, assessed or investigated. Vogel *et al.*, (2008) discussed that when the concepts of trauma and dissociation go unnoticed in someone with psychosis, this could lead to a poorer outcome over the long term.

Literature on the prevalence of trauma-related psychopathology within forensic mental health settings is sparse. Many studies which look at PTSD and the mentally ill population from the USA are not necessarily comparable to the UK population (eg. Mueser *et al.*, 1998).

An estimate of the prevalence of PTSD in The State Hospital, Carstairs, Scotland, was carried out in 2007 (Scott, unpublished, 2007). This report also considered why PTSD might not be diagnosed and what potential issues might arise if considering

delivering a service for PTSD sufferers in this type of secure mental health setting. Scott found high rates of trauma, high rates of multiple types of trauma reported by individuals, and low rates of recognition of this within the case notes. She concluded that:

patients' experiences of traumatic events, in particular early experiences of abuse, are significant in terms of the formulation of their clinical difficulties – however, focus can get lost and muddled as clinical teams strive to address risk issues and develop offending behaviour programmes (Scott, 2007).

Most studies of the relationship between dissociative symptoms and traumatic experiences have been conducted on female inpatients with trauma-related disorders. This prevents generalization of the findings to other populations. Schäfer *et al.*, (2006) examined correlations between different childhood trauma domains and dissociative symptoms in 30 female inpatients. They found high levels of reported trauma and significant correlations between physical neglect and dissociation and emotional abuse and dissociation. 75% of the sample had suffered significant experiences in at least one trauma domain using the trauma measure, and 40% in two or more domains. Though traumatic events are frequently reported among forensic patients (as Moira Scott found in 2007), dissociative disorders are rarely diagnosed (Holley *et al.*, 1995).

According to the hypothesis of a dissociative subtype of psychosis (Ross, 2000), we would expect a substantial proportion of participants with elevated rates of childhood trauma to suffer from pronounced dissociation. This study hopes to add to previous studies and aims to produce findings within a population of patients in forensic mental health settings which are consistent with others, helping to recognize a subgroup of mentally disordered offenders that is primarily environmentally driven and not biologically created. Their needs, this paper will argue, are different due to the nature of their experiences and their resulting psychopathology. Those men whose mental illness is deemed by the courts to have contributed to their act of committing a violent crime, are more likely to be those vulnerable children who were beaten, neglected, abused and

emotionally disturbed by the actions of those who were in positions of care over them. These children have developed into defensive, hypervigilant, angry and emotionally dysregulated adults. It is important that we do more to identify these patterns and presentations, and improve on the intervention strategies that we offer them.

Chapter Two

2.1 Aims

This cross-sectional, exploratory study aims to examine the prevalence of dissociative experiences, history of childhood trauma and levels of active psychosis across three secure hospitals in Scotland. The male inpatient population is known to have many of the risk factors associated with these experiences but the experiences themselves have not been measured before in forensic mental health settings in Scotland.

A further aim of the study will be to highlight the importance of keeping models of dissociation in mind when examining a patient with clusters of psychosis-related symptoms, as well as when discussing appropriate evidence-based interventions. The importance of formulating using trauma-based models will be emphasised. In order to provide targeted, effective interventions clear identification of the factors leading to and maintaining offending behaviours need to be clearly identified in clinical assessments. It is suspected that childhood trauma is an under-identified factor underpinning the presentations of many offenders therefore it is suggested that significant clinical levels of dissociation will be found in this sample of mentally disordered offenders.

2.2 Hypotheses

With the above aims in mind, a series of testable hypotheses was developed as follows:

Primary Hypotheses

- 1A. It is hypothesised that presence of childhood trauma will be related to dissociation
- 1B. It is hypothesised that presence of psychosis will be related to dissociation.
- 1C. It is hypothesised that there will be differences between groups within the data on level of dissociation.

Secondary Hypotheses

- 2A. It is hypothesised that patients with current symptoms of psychosis and significant trauma in childhood (Group 1) will exhibit more dissociative symptoms than Group 2 (current psychosis and no significant trauma in childhood), Group 3 (significant childhood trauma history but no active psychosis) and Group 4 (no psychosis and no childhood trauma).
- 2B. It is further hypothesised that patients who have experienced significant childhood trauma but who do not show signs of active psychosis (Group 3) will exhibit more dissociative symptoms than patients who have current psychosis but no experiences of childhood trauma (Group 2) and those who were neither experiencing current psychosis nor reported childhood trauma (Group 4).

Research Questions

- 1, How much dissociation is present in this sample of forensic patients?
- 2, a. What is the level of childhood trauma reported by this sample?
- 2, b. What specific types of childhood trauma were reported?
- 2,c. What proportion of the sample reported multiple types of childhood trauma?
- 3, What is the level of psychosis found in this sample of forensic mental health patients?
- 4, Are significant differences found in relation to types of psychotic symptoms that relate to presence or absence of childhood trauma?
- 5, Are specific types of childhood trauma (physical/emotional neglect and physical, sexual or emotional abuse) related to certain psychotic symptoms?
- 6, Is there a qualitatively different type of psychotic presentation, which is trauma related – is there evidence for a dissociative subtype of schizophrenia in the results?

2.3 Method

2.3.1 Power analysis

A prospective power analysis was conducted to provide guidance about the necessary sample size using guidance from two sources:

1) Standard conventions within Clinical Psychology usually adhere to Cohen's (1992) paper: *A Power Primer*. This paper outlines the relevant statistics corresponding with Analysis of Variances (ANOVAs).

2) Power Calculation. The estimation of power and sample size is based on a study by Vogel *et al.*, (2009) of 80 schizophrenic inpatients, using the CTQ (Bernstein *et al.*, 2003), DES-II and the German version of the Symptom Checklist (SCL-90R). They found that dissociation might be specifically linked to childhood neglect in people with schizophrenia.

Using the effects found in the Vogel *et al.*, (2009) study, the present study will be able to detect a medium effect of $d = 0.30$ or above using 60-90 participants in total. It was planned to categorise the data into three main groups and so 20 to 30 participants would be required for each group. These calculations were made using the reported effect sizes and G*Power version 3.0.

Calculations based on the lowest standard deviation of DES-II scores in Vogel *et al.*'s (2009) paper, indicate that a total sample size of 40 participants would be required to demonstrate a medium to large effect. This comparison using a highly relevant and comparable study therefore demonstrates that the design of this current study, aiming to use 75 participants would achieve power.

If there was an effect size of smaller than 0.30 to be found, then this study would be underpowered. However, other similar studies using similar measures do use similar sample sizes. For example, Schäfer *et al.*, (2006) used 30 female inpatients with schizophrenia in their exploratory study, to look at childhood trauma and dissociation. If this study does indeed find a medium to large effect size, this may have a relevant and clinically significant impact on the way that patients' presenting problems can be formulated, and could highlight more clearly the role dissociation plays in the development of patients' difficulties.

The chief researcher therefore attempted to recruit a total sample size of 75 participants. The results of this study will recognise the exploratory nature and will go some way to providing basic data for forthcoming studies using this client group. It will also provide important information related to the specificity of the measures used on this population. This study is described as exploratory in nature and should be seen as a first step, given that time restraints do not allow for a longitudinal plan for collecting larger sample sizes. The author intends to attempt recruitment from three hospital sites across three health-board areas in Scotland and is aware of the Multi-site ethical requirements.

2.3.2 Participants

Participants in this study were 56 (n) male mentally-disordered offenders held within three secure psychiatric hospitals across Scotland. The mean age of the participants was 40 years (SD 11.59). The primary diagnoses were composed of the following: paranoid schizophrenia, mania with psychotic symptoms, bipolar disorder with psychotic symptoms, recurrent depressive disorder with psychotic features, delusional disorder, schizoaffective disorder, dissociative personality disorder, unspecified personality disorder, mild mental retardation with significant impairment of behaviour and unspecified mental disorder due to brain damage or dysfunction.

The inclusion and exclusion criteria were as follows:

Inclusion Criteria:

- Male
- Aged between 18-65 years
- Held within a secure psychiatric setting
- Ability to provide informed consent to take part in the study,
- English as first language.

Exclusion Criteria:

- Unable to tolerate a relatively lengthy semi-structured interview, despite regular breaks
- Risk assessments from nursing staff and/or the Clinical team advising that the patient is too unwell to proceed with the study
- Moderate intellectual disability or that which prevents informed consent or ability to comprehend what is being asked of them.
- English not first language
- Known problems with executive functioning.

These criteria were assessed through discussions with the patient's Responsible Medical Officer (RMO) and identified Psychologist during the early consent process. Psychologists were first sent a list of patient names along with the criteria stated above. They removed names which did not meet the criteria. Next, the RMO's were sent a list of the patients in their care, minus the ones already excluded. At this point, the RMO's excluded names based on the criteria, and provided their consent for the remaining patients to be approached (Appendix B). Furthermore, discussions with nurses on the wards aided important information on the patient's state of mind on the day approaches by third party individuals was made. Executive functioning was only used to exclude those patients who had a formal diagnosis of dysexecutive syndrome and/or significant neurological deficiencies requiring ongoing special measures (treatment or behavioural supports for example).

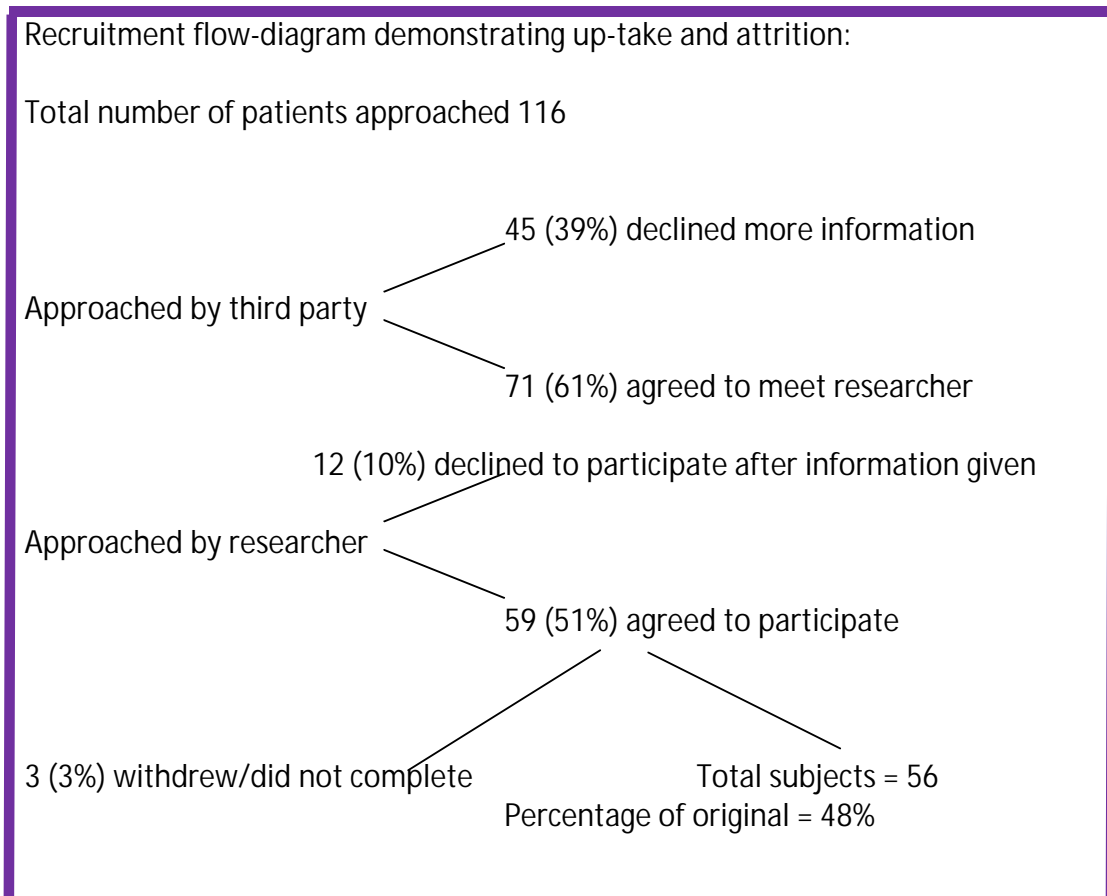
2.3.3 Recruitment

A presentation was given at two of the three hospital sites to raise awareness to staff of the nature of the study. Details of the recruitment process, aims, and method were presented and discussed. Names of patients held in each hospital were accessed (by administration staff) and grouped according to the psychologist involved with their care. Psychologists were sent a list of their patients along with detailed information of the study. They were asked to remove patients who did not fulfil the inclusion criteria. RMO

consent forms were then completed so that each consultant psychiatrist was sent a list of patients under their care along with details of the study. Where possible, this form was hand-delivered to enable the researcher to clarify the nature of the research. It was intended that the initial filter of asking psychologists to remove ineligible patients would help the RMO's to decide on who was appropriate to take part. Once the consultant psychiatrist had indicated their consent to allow patients to be approached, the recruitment at ward level began.

2.3.4 Attrition

There were several points within the recruitment process at which potential participants dropped out of the study. Please see the following diagram indicating up-take to the study and points to attrition:



The main source of attrition was at the point at which patients were asked by a third party if they were interested in taking part in some research. 45 patients declined this

invitation. Reasons for this were speculated upon: this is an over-researched client group, perhaps a lack of motivation (including negative symptoms of psychosis), perhaps the patients could see no point to themselves, poor mental health, a fear that it would disrupt their transfer options, taking too much on with other activities, fear that participation would affect forthcoming tribunals and apathy.

A second point of attrition was during the initial meeting with the researcher when the details of the study were discussed. At this point 12 out of 71 potential participants declined to take part in the study.

Only 3 participants dropped out during the administration phase. In all cases this was due to deterioration in mental state meaning that the participant was struggling to complete the measures. Support and reassurance were provided to each individual and they were reminded that their participation and subsequent withdrawal had no bearing on their care and treatment, and would not be used against them in any way. From the initial 71 participants who were approached by the researcher, 79% became participants for this study, which is 48% of the total number who were approached from the start of recruitment as highlighted on the consort diagram.

2.3.5 Measures

Qualitative methods were not considered appropriate for this study, as the research was not concerned with exploring patients' experiences of traumatic events or dissociative experiences in-depth. Whilst this would be a useful direction to follow-up on, it was felt that the data collection methods involved in qualitative research might have reduced numbers of patients willing to participate. Due to the exploratory nature of this study, it was felt that quantitative research would be a useful starting point for research in this area. Quantitative methods were considered more appropriate in order to achieve the study aims of assessing levels of dissociative experiences, levels of childhood trauma

and levels of active symptoms of psychosis within a mentally disordered offender population.

Five reliable and well-validated questionnaires were chosen to form part of the battery of measures used, along with a structured interview – the Positive and Negative Syndrome Scale (PANSS). The questionnaires were as follows:

- Beck Depression Inventory, second edition (BDI-II)
- Childhood Trauma Questionnaire (CTQ)
- Dissociative Experiences Questionnaire, second edition (DES-II)
- Relationship Questionnaire (RQ, Bartholomew and Horowitz)
- Impact of Events Scale, revised edition (IES-R)

Please note, where many of the psychological tests are 'self-report instruments', the PANSS scores also take into consideration staff findings and the interviewer's own observations. PANSS ratings are based on the totality of information pertaining to a specific period, normally identified as the previous week.

The Childhood Trauma Questionnaire (CTQ - Bernstein & Fink, 1998)

The Childhood Trauma Questionnaire (CTQ – Bernstein & Fink, 1998) is a 28-item self-report retrospective measure that provides reliable and valid screening for histories of abuse and neglect. It takes only 5 minutes to administer and is considered ‘non-invasive’ as it asks only for frequencies of examples of maltreatment – it does not ask for specific details from the respondent. The questions gather information on five types of childhood maltreatment including physical, sexual and emotional abuse, as well as physical and emotional neglect. Answers are given by choosing one of 5 likert-style answers as follows: *never true*, *rarely true*, *sometimes true*, *often true*, and *very often true*. This measure has been validated on data from over 2,000 respondents including clinical and non-clinical groups. Bernstein *et al.*, (1994) demonstrate high internal consistency with Cronbach's alpha for the factors that ranged from 0.79 to 0.94. They also concluded that the CTQ showed good test-retest reliability when given out to patients with substance

dependence over a 2-6 month period. The CTQ is regularly used in studies looking into dissociation and trauma so it was felt to be a useful choice in this exploratory study.

The Positive and Negative Syndrome Scale (PANSS - Kay, Fiszbein and Opler, 1987)

The PANSS (Kay *et al.*, 1987) was used to assess whether specific positive and negative symptoms of psychosis were present. It consists of a structured interview administered to the respondent in addition to a number of structured questions to ask relevant caregivers who know the respondent well. Thirty symptoms are rated along a seven-point scale. The assessment provides separate scores along related scales such as Positive syndrome, Negative syndrome, and General Psychopathology. These three scales are internally consistent and highly reliable as measured by coefficient alpha, the split-half method and retest reliability (Kay *et al.*, 1988). Inter-rater reliability for the PANSS lies within the range of .83 to .87. In order to administer this instrument, one must successfully complete a day's training and demonstrate appropriate levels of inter-rater reliability using a training video. This is a well-established instrument, which has been used in many other studies related to the present research, often in combination with the CTQ and the DES-II. It was therefore a relevant choice.

The Dissociative Experiences Scale (DES-II - Bernstein & Putnam, 1986; Carlson & Putnam, 1993)

The 28-item scale is derived from extensive clinical experience with an understanding of dissociative symptoms. In the initial studies during its development respondents marked their answers along a dark line, indicating how often specified experiences happened to them. The score was derived from the measurements of where they marked the line. This scoring method was revised by Carlson and Putnam in 1992, so that respondents were asked to mark what percentage of the time the experiences happened to them, and asked to circle a number from 0% to 100% (presented in units of tens) and the instrument became the DES-II. This was later published in an article by Carlson and Putnam (1993). It was concluded that this minor change did not constitute a change significant

enough to affect the established reliability and validity (Ellason *et al.*, 1991), so Carlson and Putnam (1993) pointed out that all norms and psychometric properties from earlier studies, were still valid for the DES-II. The DES-II has very good validity and reliability, and good overall psychometric properties, as reviewed by its original developers (Bernstein & Putnam, 1986; Carlson & Putnam, 1993; Carlson *et al.*, 1993; Draijer & Boon, 1993; Ellason *et al.*, 1991). It has excellent construct validity, which means it is internally consistent, as reflected in highly significant Spearman correlations of all items with the overall DES score. There are three dimensions within DES-II: dissociative amnesia, depersonalisation/derealisation and imaginative experiences. This measure is the most extensively used measure of dissociation in clinical research at the present time. Its ease of administration and scoring as well as its use in related research made it an appropriate choice for this study. It was criticised by Goldberg (1999) for having long and complex statements and repetitive wording accompanying each of the 28 questions, however it remains popular with researchers and clinicians alike and was viewed as an appropriate measure for this study.

Beck Depression Inventory Second edition (BDI-II - Beck *et al.*, 1996)

The BDI-II (Beck *et al.*, 1996) is a well-validated and reliable measure used extensively in clinical research. It is a 21-item self-report measure that takes approximately 5 minutes to complete. It was included in the battery in order to establish the presence of current depressive symptoms. This was in order to determine what factors may have influenced results on other measures.

Impact of Events – Revised Edition (IES-R – Weiss & Marmar, 1997)

The IES-R (Weiss & Marmar, 1997) provided a measure of current symptoms related to PTSD. It is a popular 22-item scale which was revised to incorporate three symptom clusters of PTSD: intrusions, hyperarousal and avoidance. The use of this scale allowed the study to determine whether current trauma symptoms interfered with any trauma symptoms which may or may not have resulted from childhood as measured in the CTQ.

The psychometric properties have been examined and reliability and validity has been assessed (Creamer *et al.*, 2003).

The Relationship Questionnaire (RQ - Horowitz & Bernstein, 1991)

The RQ (Horowitz & Bernstein, 1991) was also used as a brief assessment of attachment style. It is acknowledged that this scale, used in this way has a limited ability to determine detailed attachment information. However as attachment style is relevant within the dissociative literature, the RQ was used as a dimensional approach to suggesting the best-fitting attachment pattern for each participant, based on the choices they made within a four-factor model. Respondents were asked to read four statements broadly describing different attachment styles and chose one that best described them. They then rated how much each statement described them by indicating on a 1-7 scale where 1 indicated *Not at all like me*, 4 indicated *Somewhat like me*, and 7 indicated *Very much like me*. The four attachment styles indicated in this measure are Secure, Fearful, Preoccupied and Dismissive. The psychometrics for this four-factor dimensional model have been explored (Griffin & Bartholomew, 1994).

2.3.6 Design

This study utilises a cross-sectional design, involving data collection from a group of male patients held in secure accommodation across three hospital sites in Scotland. They differ in age, length of admission, forensic history and specific psychiatric symptom presentation.

In order to test the hypotheses made in this study, the data was separated into three main groups, plus an additional control group, using arbitrary distinctions, which are supported by the literature. Presence of psychosis (P) was defined by a score of 4 (moderate) or higher on any of the PANSS positive items (delusions, conceptual disorganisation, hallucinatory behaviour, excitement, grandiosity, suspiciousness/persecution and hostility) as described in other studies (Kay *et al.*, 1987; Lysaker *et al.*,

2006). Presence of childhood trauma (CT) was defined by a score above the lowest category (none-minimal) on any of the five domains (physical/emotional neglect, physical, emotional and sexual abuse) (Johnston *et. al.*, 2009). This makes ecological sense in that moderate, severe or extreme levels of any of these types of childhood trauma can be significant risk factors of adult pathology. Group 1 will consist of subjects indicating presence of psychosis and presence of childhood trauma (P + CT). Group 2 will consist of subjects indicating psychosis and no childhood trauma (P + no CT). Group 3 will consist of subjects indicating no present psychosis but presence of childhood trauma (no P + CT). Group 4 will consist of subjects indicating no psychosis and no childhood trauma (no P + no CT).

2.3.7 Variables considered

The dependant variable for the study was level of dissociation as rated by scores on the DES-II. The independent variables were level of significant psychotic symptoms as rated by the PANSS and endorsement of items on the CTQ indicating clinically significant childhood trauma. Measures recording current levels of depression and PTSD symptomology were also taken, by using BDI-II and IES-R. This was to make attempts to isolate the key variables. A basic measure of attachment style was also used (RQ – Horowitz & Bernstein, 1991) to provide some information relating to current attachment style. These supplementary questionnaires were included in the battery as it was felt important to gain an idea of additional characteristics and presenting symptoms in the sample. If the sample was showing significant levels of depression for example, the interpretation of the results would need to appreciate this.

2.3.8 Ethical review, permissions

As with all NHS research there are important guidelines to follow when seeking permission to carry out studies on NHS patients and staff. The Integrated Research Application System (IRAS) was utilised, and it was through this system that a full ethical review process was instigated. Once the full ethics form with protocol and

consent forms/information sheets was submitted, the researcher attended the ethical review panel. Discussions took place regarding the project with all members given a chance to comment. The researcher was required to make minor changes to the application and relevant paperwork, before being granted full ethical permission. R&D approvals from all three health-boards were then duly sought out and permission was granted to begin the study. This was then used to complete relevant R&D approvals. Documentation relating to relevant permissions and approvals can be found in Appendix A.

2.3.9 Settings – three health-boards, three hospitals

As detailed above, ethical permission and local R&D/management approvals were gained to allow this study to span three secure hospital sites within three NHS health-boards in Scotland. The researcher was employed as a Specialist Psychological Practitioner in one of the chosen sites: The State Hospital, Carstairs (NHS Special Hospitals Board for Scotland). This is a maximum-security psychiatric hospital for Scotland and Northern Ireland. The Orchard Clinic, Edinburgh (NHS Lothian) is a medium secure psychiatric hospital for the east of Scotland, and was an additional setting for recruitment to this study. Finally, Rowanbank Clinic, Glasgow (NHS Greater Glasgow and Clyde), a medium secure psychiatric hospital for the west of Scotland, was the final site used for this study.

2.3.10 Procedure

Recruitment at ward level focused on one ward at a time within each hospital and contact was made with senior nursing staff, disseminating information about the study and providing him or her with a list of patients on that ward who could be approached.

In compliance with ethical guidelines, the researcher did not make the first approach to potential participants. This is standard policy to prevent any notion of undue

encouragement or pressure on an individual to acquiesce to taking part against their wishes. Usually a charge nurse or allocated psychologist/assistant psychologist made the first (third party) approach to the patient inviting them to take part in the study. In most instances this was a member of staff whom the patient knew well. Brief details of the research were provided to each person involved at this stage of the process (provided by the researcher). If the patient agreed, they were invited to meet with the researcher at a mutually convenient time.

These meetings often lasted 10 minutes during which time the nature of the study was introduced. The Participant Information Sheet (Appendix B) was given out and fully explained. An opportunity for the patient to ask any questions was always given. If they indicated that they would like to take part, the Participant Consent Form (Appendix B) was discussed and completed. In a lot of cases, the participant was then happy to begin the process by which the data collection (questionnaires and interview) began; in other cases, a mutually convenient time was arranged for the researcher to return. For other participants time was allowed for them to consider the information provided, and to decide whether they wished to take part.

Prior to the administration period, contact was made with ward staff and enquiries carried out as to the mental state of each participant to be interviewed. This fully complied with security procedures at each hospital and ensured that ward staff knew that the researcher was on the ward, who was to be interviewed and when. The administration of the measures used in this study always took place in a quiet room within the ward area. This provided privacy and a familiar space for each participant. During the administration of the psychometrics, each participant was given a number, which was written on each of the measures they completed. In this way, no names were written on any of the completed measures and only the researcher kept a 'key' to which data set corresponded to which participant.

In most cases the five questionnaires were administered first. Despite being ‘self-report’ in nature, a large proportion of participants requested that the researcher go through the instructions and each question, and occasionally to make the appropriate markings on the sheets. The rest of the participants were content to listen to a brief introduction of each measure and mark the paper themselves. At no point did the researcher make attempts to influence the answers chosen by the participant. Whilst some participants requested further clarification or explanation of the questions put to them, the researcher relied on clinical experience to appropriately give unbiased explanations without intentionally leading participants to give a particular answer.

Some participants requested to break up the administration phase and arranged a time for the researcher to return to hold the structured interview. For others, all measures were completed in one session. During the structured interview (PANSS), administration guidelines were carefully followed. Once all measures were completed, the participant was given the opportunity to ask any questions, thanked and returned to the ward areas. Ward staff were notified when participants were returned to the day areas on the ward. The researcher politely requested an appropriate member of staff to complete the ‘Informant’ aspect of the PANSS and if not possible, arrangements were made to return to the ward to complete this aspect within four days of the initial participant interview.

Chapter Three

3.1 Results

3.1.1 Characteristics of the sample

The sample consisted of 56 male, mentally disordered offenders with a mean age of 40 years (SD 11.59) and with a range from 19 years to 64 years. 44 participants were recruited from a maximum secure facility and the remaining 12 participants were recruited from two medium secure facilities, across three NHS health-boards in Scotland. 65% had a primary diagnosis of Paranoid schizophrenia. No patients involved in this study had a primary or secondary diagnosis of a dissociative or trauma related disorder. See Figure 3.1 for a breakdown of primary diagnoses.

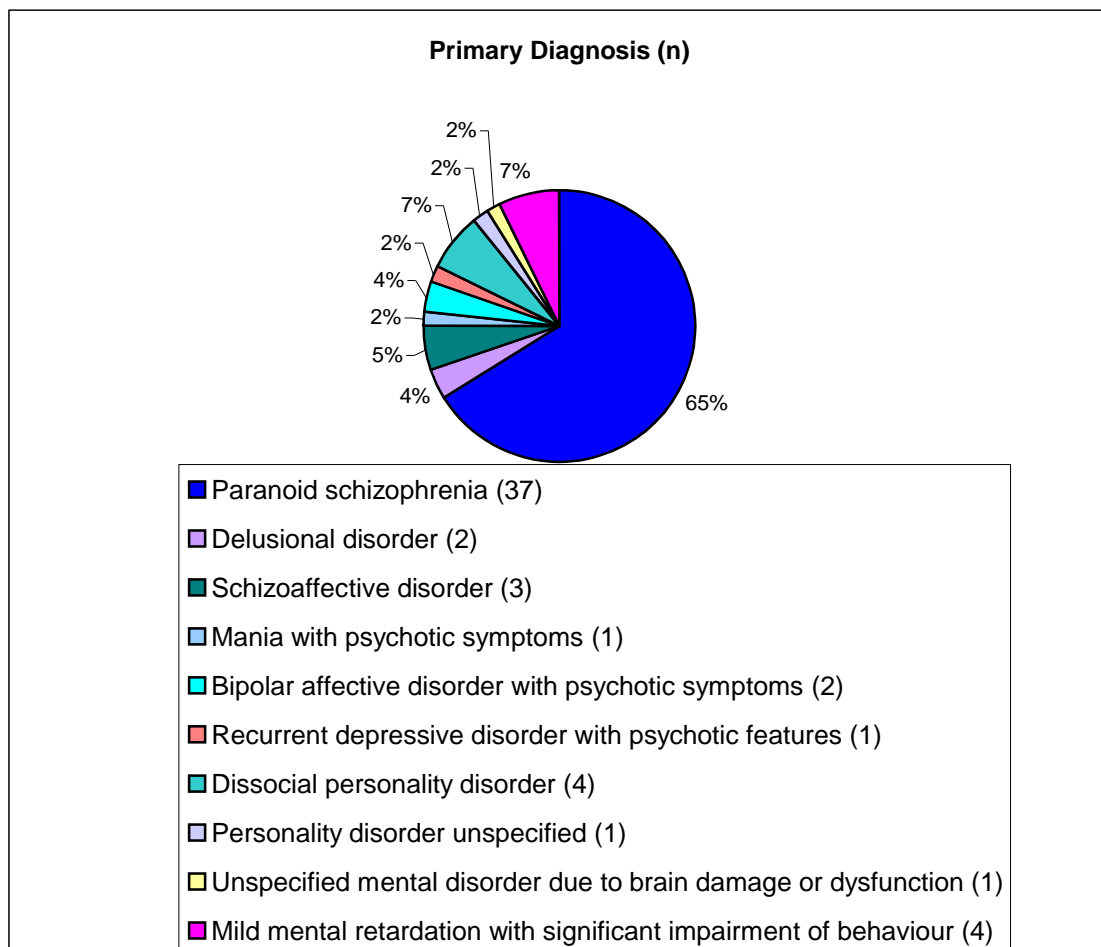


Figure 3.1: Pie chart to show the frequency of primary diagnoses within the sample.

Tables 3.1 and 3.2 highlight the descriptive statistics of the complete sample relating to the measures used. With respect to the data from the CTQ, Table 3.1 presents the continuous data from the raw scores on the measure, whilst Table 3.2 presents the frequency and percentage of the entire sample who endorsed items indicating ‘moderate’, ‘severe’ or ‘extreme’ on each of the CTQ categories (sexual abuse, emotional abuse, physical abuse and physical and emotional neglect).

Table 3.1: Descriptive statistics for the overall sample (mean or median presented where appropriate):

	Mean (SD)	Median	Inter Quartile Range (IQR)
Age	40years (11.6)	-	-
PANSS positive	14.4(5.3)	-	-
PANSS negative	16.0 (5.0)	-	-
PANSS general psychopathology	30.4(6.8)	-	-
Dissociation scores (DES-II)	-	10.2	6.2, 15.4
Depression (BDI-II)	-	10.0	4, 17
PTSD (IES-R)	-	1.5	0, 26
Childhood Trauma (CTQ) total		47.0	42, 70.5
Emotional abuse	-	7.0	5, 13.5
Physical abuse	-	7.0	5, 13
Sexual abuse	-	5.0	5, 7
Emotional neglect	-	11.0	6, 16.5
Physical neglect	-	8.5	6, 12

Table 3.2: Frequency data for the overall sample

	Frequency (percent)
Primary diagnosis: Paranoid schizophrenia	37 (65%)
Clozapine	15 (27%)
Psychosis: Present (score ≥ 4 on PANSS items P1-P7)	34 (61%)
Presence of Childhood Trauma (a score of moderate, severe or extreme in any of the 5 CTQ domains)	42 (75%)
Attachment style - Secure	20 (36%)
Attachment style - Preoccupied	16 (29%)
Attachment style - Fearful	6 (11%)
Attachment style - Dismissing	14 (25%)

Table 3.1 shows a large spread of scores on the DES-II, indicating a range of endorsement of dissociative symptoms. Ross and Keyes (2004) used a cut-off on the scores on the DES-II to differentiate between high and low dissociators. They split their sample between those scoring above and below 25 on DES-II. Vogel *et al.*, (2009) did the same. Applying this split to the data for this study shows that 10 participants (18%) would fall into this category of high dissociators and suggest that further assessment of their dissociative symptoms may be warranted, with a diagnostic tool like the Structured Clinical Interview for Dissociative-Disorders (SCID-D - Steinberg, 1995).

The median score with respect to depression (BDI-II) was low and within the 'minimal' range for clinical depression according to clinical cut-offs (Beck *et al.*, 1996). The majority of participants scored within the 'minimal' range for depression (n=36).

This indicated that average rates of current depression were low and that depression should not act as a confounding variable when discussing the impact of the key variables. Fourteen participants scored within the ‘mild’ range, four had scores indicating ‘moderate’ depression and two participants scored within the ‘severe’ range for depression.

Similarly, the mean score on the IES-R, which gives an indication of current symptoms of PTSD is low, however the range is large (0 – 65). IES-R is used as a formal measure to support the clinical assessment of PTSD. According to Creamer *et al.*, (2003) the cut-off score on the IES-R indicating clinical levels of PTSD symptoms is where total score ≥ 33 , and the higher the score, the greater the severity of the symptoms. Eleven participants achieved a total score indicating clinical levels of posttraumatic symptoms. Therefore results in Table 3.1 indicate that a large majority of participants (80%) did not report significant symptoms of PTSD. This also means that current trauma symptoms (IES-R scores) should not confound the theorised effect of childhood trauma (CTQ scores).

The most frequently endorsed attachment style on the RQ was the item that corresponds with secure attachment pattern (36%). Almost one third of the sample (29%) fell into the preoccupied category whilst one quarter identified with the dismissing attachment style (25%). Fearful attachment received the least endorsement with only 11% of the sample seeming to fall into this category.

Levels of childhood trauma reported by the sample

Table 3.2 highlights a high level of childhood trauma reported by the sample. 75% (42) of the sample endorsed items on the CTQ that led to a categorisation of ‘minimal-moderate’, ‘moderate-severe’ or ‘severe-extreme’ for one or more of the five domains of abuse (sexual abuse, emotional abuse, physical abuse and physical and emotional neglect). The remaining 25% (14) produced scores, which placed them within the ‘none-minimal’ category for the five trauma domains.

Figure 3.2 below, highlights that almost as many subjects who did not report childhood trauma (CT), reported levels of ‘moderate’ or above, across all five domains (sexual abuse, emotional abuse, physical abuse and physical and emotional neglect). Fourteen participants did not report CT (25%), 8% reported CT in only one domain however 61% of the entire sample indicated that they had experienced CT across two or more categories of abuse and neglect as shown below:

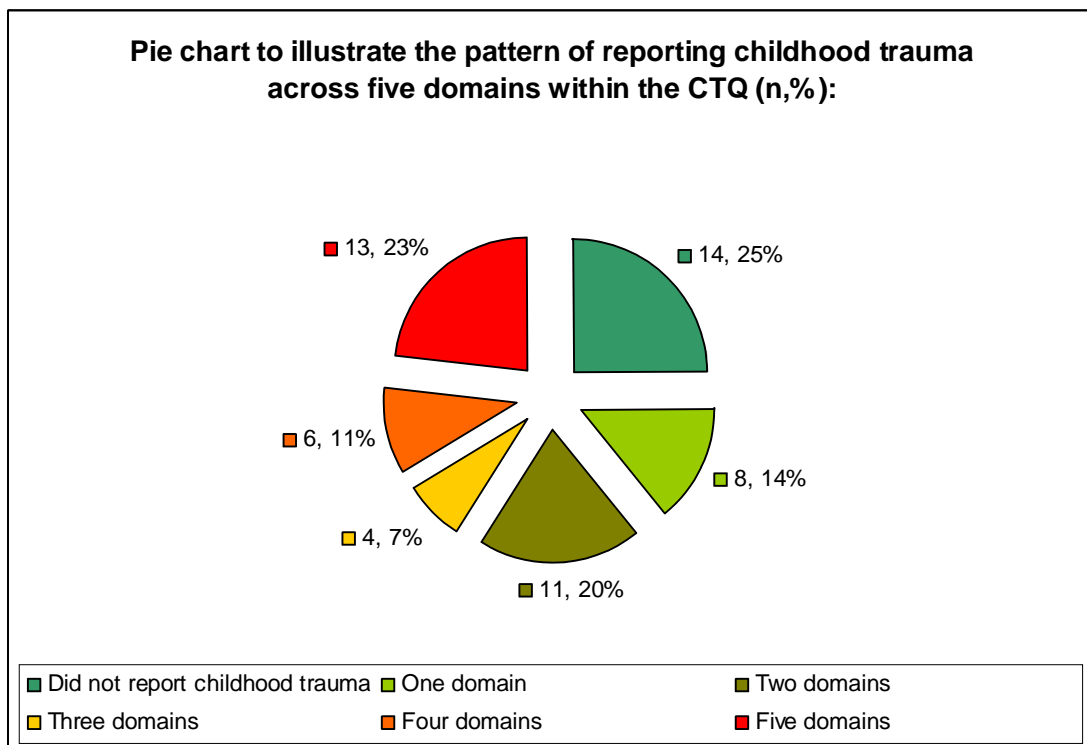


Figure 3.2: Pie chart to illustrate the pattern of reporting childhood trauma across five domains within the CTQ.

The following graph provides an indication of the severity of the childhood trauma reported by the sample. Extreme trauma was reported across all five domains. Figure 3.3 also shows that whilst sexual abuse was the least reported, those who disclosed these experiences were more likely to report extreme degrees of this type of childhood trauma. A similar pattern was evident in the reporting of physical abuse. Out of 26 participants

who reported physical abuse, 15 participants (58% of those who reported physical abuse) reported extreme physical abuse.

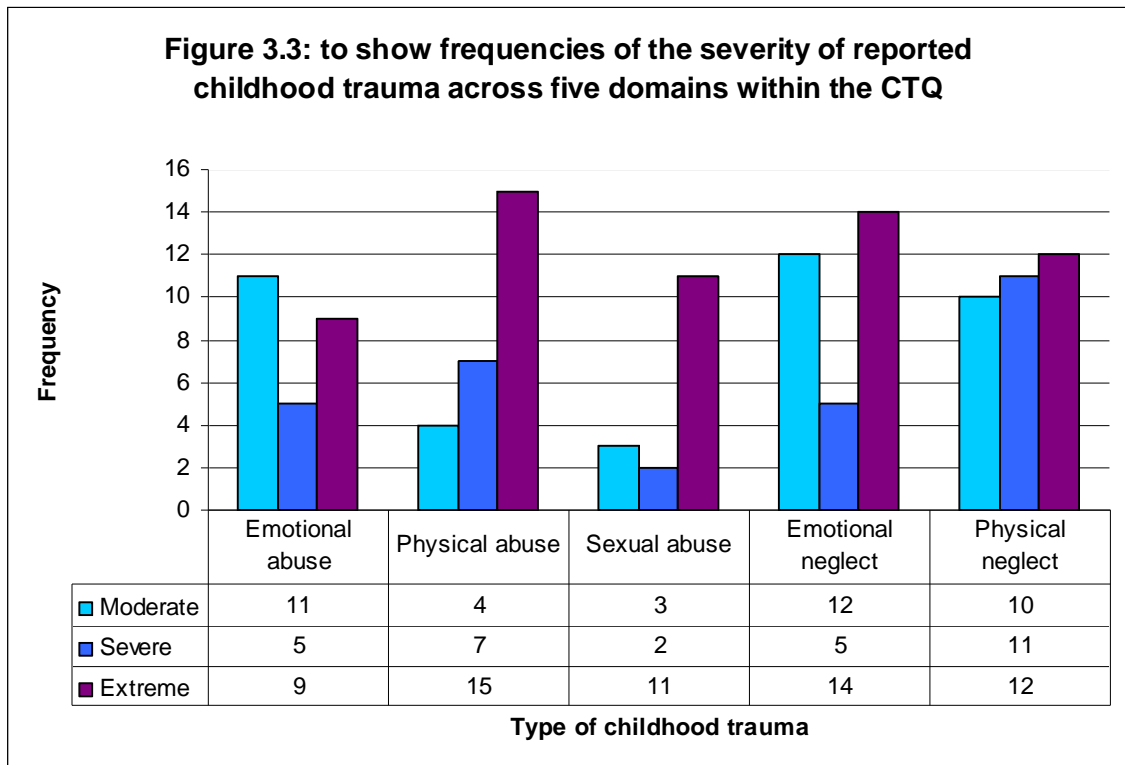


Figure 3.3: Graph to show frequencies of the severity of reported childhood trauma across five domains within the CTQ

As described earlier, three quarters of the entire sample reported CT equal to or above the arbitrary threshold (‘minimal-moderate’ or greater, in one or more of the five trauma categories). As shown in Figure 3.2, responses could therefore indicate multiple domains and many participants did. The following table indicates the spread of responses across the five trauma categories, and percentages are calculated from the 42 subjects who reported significant trauma:

Table 3.3: to show frequencies and percent of subjects scoring above threshold across five domains of childhood trauma

	Frequency	Percentage
Emotional abuse	25	59.5%
Physical abuse	26	61.9%
Sexual abuse	16	38.1%

Emotional neglect	31	73.8%
Physical neglect	33	78.6%

Table 3.3 indicates, in particular, the prevalence of neglectful childhood experiences reported in this sample.

Parametric assumptions not met

Prior to beginning analysis, the assumptions of parametric data were tested. Kolmogorov-Smirnov revealed that most of the variables were not normally distributed. Furthermore Levene's statistic highlighted variables within the data that had variances, which differed significantly indicating that another parametric assumption has been violated. Non-parametric statistics were used due to the violation of non-parametric assumptions.

Groups

Four groups within the sample were defined in the manner described in Method section 2.3.2. Table 3.4 shows the properties of the groups once formed:

Table 3.4: Showing sample size and characteristics of each group

	Psychosis (P)	No Psychosis (no P)
CHILDHOOD TRAUMA (CT)	Group 1 n=26 (46%)	Group 3 n=16 (29%)
NO CHILDHOOD TRAUMA (no CT)	Group 2 n=8 (14%)	Group 4 n=6 (11%)

It would appear that Groups 1 and 3 have a larger sample size and that Group 4 is small. This is a study of clinical reality and as such this sample of data has high ecological validity. However, due to the differences in size of the categorised groups, the following results must be interpreted with caution.

Descriptive statistics were carried out on the data by group and are shown in Tables 3.5 (descriptives) and Table 3.6 (frequencies) below. As before, means and medians are presented where appropriate. Table 3.5: Descriptive statistics by group

	Group 1 (P + CT) n=26			Group 2 (P + no CT) n = 8			Group 3 (no P + CT) n = 16			Group 4 (no P + no CT) n = 6		
	Mean (SD)	Median	IQR	Mean (SD)	Median	IQR	Mean (SD)	Median	IQR	Mean (SD)	Median	IQR
Age	42.2 (11.7)	-	-	31.5 (12.3)	-	-	42.6 (10.5)	-	-	35.0 (8.0)	-	-
PANSS Positive	17.2 (4.8)	-	-	17.0 (4.9)	-	-	10.4 (2.4)	-	-	9.2 (2.3)	-	-
PANSS Negative	16.0 (4.3)	-	-	15.6 (4.5)	-	-	16.0 (4.8)	-	-	16.3 (9.0)	-	-
PANSS General psychopathology	33.1 (6.1)	-	-	32.5 (7.3)	-	-	27.0 (5.8)	-	-	24.7 (5.8)	-	-
Dissociation scores (DES-II)	-	11.1	5.9, 27.1	-	10.2	6.9, 13.3	-	12.7	8.3, 17.0	-	4.6	1.9, 8.1
Depression (BDI-II)	-	12.0	6.0, 19.0	-	11.0	9.0, 15.8	-	9.0	4.0, 16.5	-	2.5	1.8, 3.8
PTSD (IES-R)	-	13.0	0.0, 38.3	-	0.0	0.0, 18.3	-	0.0	0.0, 25.5	-	0.0	0.0, 5.5
Emotional abuse	-	9.0	5.8, 16.8	-	5.0	5.0, 6.8	-	10.5	6.0, 15.0	-	5.5	5.0, 6.3
Physical abuse	-	9.0	5.0, 14.0	-	5.0	5.0, 6.8	-	10.0	5.0, 13.8	-	5.0	5.0, 5.5
Sexual abuse	-	5.0	5.0, 14.0	-	0.0	5.0, 5.0	-	5.0	5.0, 11.5	-	0.0	5.0, 5.0
Emotional neglect	-	12.0	8.3, 15.8	-	5.0	5.0, 6.5	-	15.5	9.8, 20.8	-	6.5	5.0, 7.0
Physical neglect	-	9.5	7.8, 12.3	-	5.0	5.0, 6.0	-	10.0	7.3, 15.0	-	5.0	5.0, 6.8

Table 3.6: Frequency data by group

	Group 1 (P + CT) n=26	Group 2 (P + no CT) n = 8	Group 3 (no P + CT) n = 16	Group 4 (no P + no CT) n = 6
	Frequency (percent)			
Primary diagnosis: Paranoid schizophrenia	17 (65.3%)	5 (62.5%)	11 (68.8%)	4 (66.7%)
Clozapine	5 (19.2%)	3 (37.5%)	5 (31.3%)	2 (33.3%)
Psychosis: Present (score ≥ 4 on PANSS items P1-P7)	26 (100%)	8 (100%)	*	*
Presence of Childhood Trauma (a score of moderate, severe or extreme in any of the 5 CTQ domains)	26 (100%)	*	16 (100%)	*
Emotional abuse	15 (57.7%)	*	8 (62.5%)	*
Physical Abuse	15 (57.7%)	*	11 (68.7%)	*
Sexual Abuse	10 (38.5%)	*	6 (37.5%)	*
Emotional Neglect	19 (73.1%)	*	12 (75%)	*
Physical Neglect	21 (80.8%)	*	12 (75%)	*
Attachment – Secure	8 (30.8%)	3 (37.5%)	3 (18.8%)	6 (100%)
Attachment - Preoccupied	10 (38.5%)	2 (25%)	4 (25%)	00 (00%)
Attachment - Fearful	2 (7.7%)	2 (25%)	2 (12.5%)	00 (00%)
Attachment - Dismissing	6 (23.1%)	1 (12.5%)	7 (43.8%)	00 (00%)

* by defining groups by presence / absence of P and CT, these cells are zero.

Table 3.5 shows that Groups 1 (P + CT) and 3 (no P+ CT) have similar age distributions. PANSS negative scores are almost the same across all groups. PANSS positive scores differ appropriately across the groups with Groups 1 and 2 (P + no CT) showing higher means for this variable compared to groups 3 and 4 (no P + no CT). This

makes sense indicating a split between the groups differentiated by presence or absence of positive symptoms of psychosis (P).

It would appear that there may be differences in IES-R scores between the groups with Group 4 (no P + no CT) having the lowest median and inter-quartile range scores for this measure – which makes ecological sense. Interestingly Group 1 (P + CT) has the highest median and inter-quartile range scores on the current trauma measure; perhaps highlighting that current psychosis and history of childhood trauma may be associated with current traumatic symptomology. It is possible that this combination of psychopathological disturbance may make these individuals particularly vulnerable to PTSD and that these individuals may be currently experiencing higher levels of post-traumatic symptoms compared to other individuals in the sample. Furthermore median scores indicate that most of the clinically significant scores (total score ≥ 33 ; Creamer *et al.*, 2003) on the IES-R were found in participants allocated to Group 1 (P + CT).

Attachment styles appear to vary across the groups. Table 3.6 shows that almost 40% of Group 1 (P + CT) endorsed the item relating to preoccupied attachment style, on the Relationship Questionnaire (RQ). Almost 40% of Group 2 (P + no CT) and 100% of Group 4 (no P + no CT) endorsed secure attachment style on the RQ. Almost half of Group 3 (no P + CT) indicated the dismissing attachment style (44%). However as the sizes of the groups are so small, it is difficult to draw clear conclusions from this preliminary data.

Categorical analysis - Chi-square analysis

Using the data categorised into groups, attempts were made to answer the Primary hypothesis 1C: that differences would be found between frequency of high dissociators and groups within the data. A series of 2x2 chi-square (cross tables) analyses were carried out where dissociation was categorised in the manner described earlier (Ross & Keyes, 2004). Fisher's exact test was used in view of the participant numbers in each group. Group 1 (P + CT) and Group 2 (P + no CT) were compared with respect to

high/low dissociation. Group 2 and Group 3 (no P + CT) were also compared with respect to high/low dissociation. Finally Group 1 and Group 3 were compared with respect to high/low dissociation. Due to low numbers in Group 4 (no P + no CT; n=6), this group was excluded from this part of the analysis. In running these tests it quickly became clear that the nature of the group sizes had an impact on the expected counts involved and that the chi-square results were affected by expected counts falling below the necessary levels (5).

There was a non-significant association between the level of dissociation (high vs. low dissociators) and Groups 1 and 2: $\chi^2 (1) = 0.707$, $p = 0.645$, ns. One of the expected counts was 1.9 falling below the required level of 5.

There was a non-significant association between the level of dissociation (high vs. low dissociators) and Groups 2 and 3: $\chi^2 (1) = 0.00$, $p = 1.00$, ns. Two of the expected counts within this analysis fell below 5.

Similarly there was no evidence of a significant association between dissociation and Groups 1 and 3: $\chi^2 (1) = 1.224$, $p = 0.442$, ns. One of the expected counts fell below 5.

Due to the low expected counts during chi-square analysis, no significant results were obtained with respect to whether higher scores on DES-II (>25) are found within specific groups.

The CTQ is generally used to provide subscale scores for each of the five CT domains. In this way, subscale scores for each type of abuse/neglect are usually reported and used to inform intervention (Johnston *et al.*, 2009). Data from the CTQ was therefore considered categorical in nature when investigating the hypothesis that there would be a difference in dissociation scores in relation to presence or absence of CT. The non-parametric equivalent of the independent t-test (Mann-Whitney) was used to test whether there was a difference in dissociation scores in the groups related to

presence of CT (Groups 1 and 3) compared with the groups related to the absence of CT (Groups 2 and 4).

This analysis provided significant results where it was found that dissociation scores in the groups who reported CT were significantly higher: (Median= 12.0 IQR = 7.1, 19.0) than in the group with no CT (Median = 8.0 IQR = 3.2, 11.2). The results were significant at the two-tailed significance level: $U= 185.50$, $z = -2.054$, $p = 0.039$, $r = -0.27$ (medium effect size as it is below the 0.3 criterion).

Inferential analysis - Correlations

With respect to the Primary hypotheses (1A and 1B) there were several key relationships that this study was interested in. Firstly, in relation to psychosis, this study was interested in whether or not there was a significant association between scores on PANSS positive and dissociation scores. Furthermore, this study is interested in whether particular symptoms within the PANSS positive scale correlated significantly with dissociation scores.

Secondly, in relation to childhood trauma, this study was concerned with whether or not there was a significant association between total scores on the CTQ and dissociation scores. In addition to this, the investigation was also concerned with whether or not specific types of childhood trauma (childhood physical abuse, CPA, childhood sexual abuse, CSA, childhood emotional abuse, CEA, childhood physical neglect, CPN and childhood emotional neglect, CEN) significantly correlated with dissociation scores.

In order to investigate these relationships, Spearman Rho non-directional (2-tailed) correlations were performed on the key variables to test for associations between them and dissociation. The interval data directly from the measures was used. The Bonferroni correction was not used despite the multiple comparisons which were carried out. Had Bonferroni's correction been applied, the relevant significance level would have been $p < .0036$. The decision not to apply this measure to protect against type one error was

made due to the exploratory nature of the study and due to the highly conservative significance level which would result if Bonferroni was used. However this does mean that the results presented must be interpreted with caution. Table 3.7 shows the table of correlation coefficients.

Total score on the PANSS positive subscale of the PANSS was not significantly associated with DES-II scores: $r_s = .239$, $p = .076$.

With respect to specific positive symptoms of psychosis as defined by the PANSS measure (Kay *et al.*, 1987), DES-II scores were significantly associated with delusions and hallucinatory behaviour as follows: Delusions $r_s = .333$, $p = .012$, Hallucinatory behaviour $r_s = .346$, $p = 0.009$. No significant associations were found with the remaining PANSS positive symptoms.

There was no evidence of a significant correlation between total score on the CTQ and scores on the dissociation measure as the following shows: $r_s = .190$, $p = 0.161$.

With respect to specific types of childhood traumatic experiences measured within the CTQ, emotional abuse and sexual abuse appeared to be significantly associated with dissociation scores as follows: Emotional abuse $r_s = .294$, $p = 0.028$, Sexual abuse $r_s = .405$, $p = 0.002$.

Table 3.7: To demonstrate correlation coefficients following Spearman Rho analysis

	Dissociation	PANSS positive	Delusions	Conceptual disorganisation	Hallucinatory behaviour	Excitement	Grandiosity	Suspiciousness/Pers	Hostility	CTQ total	Emotional abuse	Physical abuse	Sexual abuse	Emotional neglect	Physical neglect
Dissociation	1.00														
PANSS positive	.24	1.00													
Delusions	.33*	.71**	1.00												
Conceptual disorganisation	-.01	.30*	.13	1.00											
Hallucinatory behaviour	.35**	.70**	.48**	.05	1.00										
Excitement	.06	.48**	.17	.09	.33*	1.00									
Grandiosity	.06	.58**	.38**	.13	.22	.23	1.00								
Suspiciousness/Pers	.06	.59**	.44**	.13	.39**	.14	.12	1.00							
Hostility	.09	.59*	.36**	.04	.33*	.23	.28*	.16	1.00						
CTQ total	.19	.04	-.09	.12	.05	.13	.05	.03	-.06	1.00					
Emotional abuse	.29*	.09	-.05	.18	.03	.05	.14	-.12	.00	.81**	1.00				
Physical abuse	.19	.14	-.06	.15	.03	.26	.17	-.11	.03	.76**	.70**	1.00			
Sexual abuse	.41**	.14	.07	.15	.11	.22	.05	-.08	.11	.63**	.62	.57**	1.00		
Emotional neglect	.18	-.06	-.14	.03	.06	.09	.04	.06	-.13	.81**	.65**	.46**	.36**	1.00	
Physical neglect	.22	-.00	-.07	.21	.05	.17	-.03	.09	-.14	.84**	.61**	.59**	.49**	.78**	1.00

* Correlation is significant at the $p < 0.05$ significance level (2-tailed).

** Correlation is significant at the $p < 0.01$ significance level (2-tailed).

Inferential analysis – Kruskal-Wallis

To answer the secondary hypotheses (2A and 2B) of this study, it was necessary to compare the groups discussed earlier. The Kolmogorov-Smirnov test was run to examine the distribution of the four groups. Group 1 (P + CT), $D(26) = 0.195$, $p = 0.012$, Group 2 (P + no CT), $D(8) = 0.371$, $p = 0.002$ and Group 3 (no P + CT), $D(16) = 0.203$, $p = 0.077$ were all significantly non-normal. Group 4 (no P + no CT) $D(6) = 0.161$, $p = 0.200$ indicated a normal distribution. It was therefore accepted that the non-parametric equivalent of the one-way ANOVA: the Kruskal-Wallis, would be used. Explorations were required to investigate whether there was evidence of a difference between the groups on levels of dissociation, and if so, trend analysis would hope to indicate where these differences lay.

The Kruskal-Wallis result was as follows: $H(3) = 7.73$, $p = .05$. By convention, a statistical result is considered significant if the significance value (p) is less than 0.05. Therefore this result indicates that the analysis falls just short of significance. Post hoc tests were therefore not carried out.

Instead, trend analysis took place using Jonckheere-Terpestra (one-tailed). The coding variables were ordered in the following manner in an attempt to predict how the resulting medians would be ordered:

1= Group 1 (P + CT)

2= Group 3 (no P + CT)

3= Group 2 (P + no CT)

4= Group 4 (no P + no CT).

The variables were coded in this way due to the hypothesis (2A) that Group 1 would contain the highest scores on the dissociation measure. Following this however, it was predicted that the group containing high childhood trauma scores and no psychosis, would contain the second highest levels of dissociation. It was hypothesised (2B) that Group 4 would contain the lowest scores of dissociation because of its composition of non-psychotic individuals who had not reported experiencing childhood trauma.

The z score resulting from the trend analysis was $z = -1.65$. A value of greater than 1.65 is the required threshold value in order to indicate significance. This result therefore supports the Kruskal-Wallis finding in that it falls directly on the threshold, and just misses significance. z scores can be compared with normal distributions and 1.65 (irrespective of the sign) is equivalent to the value 0.05 or 5 percent of the area under the curve. The negative sign indicates that the medians trend in a descending direction e.g. the medians get smaller as the value of the coding variable gets bigger. This trend analysis therefore suggests that the data trends in the direction predicted when the variables were coded. However the results in general do not show a significant difference between the groups and dissociation scores.

Summary of results

The results presented in this thesis can be summarised into six points as detailed below:

1. DES-II scores did not correlate significantly with overall CTQ total scores
2. DES-II scores did not correlate significantly with overall PANSS positive scores
3. DES-II scores did correlate significantly with Emotional abuse and Sexual abuse
4. DES-II scores did correlate significantly with Hallucinatory behaviour and Delusions
5. Increased levels of dissociation were found in the groups reporting Childhood Trauma
6. Kruskal-Wallis analysis was just out of range for significance meaning that no clear differences were shown between groups with respect to dissociation. However z scores indicated a trend in median scores in the direction predicted.

3.2 Discussion

The overall aim of the study was to explore levels of dissociation and childhood trauma amongst a population of male patients held in forensic mental health care settings. It hoped to add to existing literature examining the relationships between trauma, psychosis and dissociation, and specifically to investigate the concept of a dissociative subtype of psychosis.

To date research has provided evidence that high levels of trauma can be found in people hospitalized due to their significant mental health problems. In particular, people with psychosis are often found to have experienced extremely traumatic events from an early age. Dissociative mechanisms are thought to be triggered as a way of protecting the ‘self’ from the effects of overwhelming trauma. Previous studies have proposed that dissociative symptoms heavily overlap with psychopathology traditionally associated with psychosis (Ross, 2004). More and more evidence is highlighting that interventions which target trauma can reduce dissociative symptoms, and could therefore have a significant effect on the symptom profile of individuals diagnosed with psychotic disorders.

The present study aimed to examine a forensic inpatient population, in which levels of dissociation are unknown and under-researched, and to investigate if associations exist between childhood trauma, psychosis and dissociation.

In this section the results for each hypothesis are presented and discussed. Comparisons with previous research are made. Methodological limitations are considered together with theoretical and clinical implications of the results. Conclusions are made and directions for future research are considered.

In relation to the original Hypotheses:

Primary Hypotheses

- 1A. It was hypothesised that presence of childhood trauma will be related to dissociation - **Patients who reported childhood trauma were significantly**

more dissociated than those who did not report early trauma. Furthermore, emotional abuse and sexual abuse were significantly associated with dissociation scores.

- 1B. It was hypothesised that presence of psychosis will be related to dissociation - **In general, patients with high scores within the PANSS positive scale were not more dissociated than those with lower scores. Within the scale however, hallucinatory behaviour and delusions were significantly correlated with dissociation scores.**
- 1C. It was hypothesised that there will be differences between groups within the data on level of dissociation – **Dissociation scores in the groups who reported CT were significantly higher. However the interactions between all groups and dissociation scores were non-significant indicating that the arbitrary distinctions made in the creation of the groups, did not isolate the high dissociators into any one group.**

Secondary Hypotheses

- 2A. It was hypothesised that patients with current symptoms of psychosis and significant trauma in childhood (Group 1) will exhibit more dissociative symptoms than Group 2 (current psychosis and no significant trauma in childhood), Group 3 (significant childhood trauma history but no active psychosis) and Group 4 (no psychosis and no childhood trauma) – **Analyses performed to investigate this proved non-significant.**
- 2B. It was further hypothesised that patients who have experienced significant childhood trauma but who do not show signs of active psychosis (Group 3) will exhibit more dissociative symptoms than patients who have current psychosis but no experiences of childhood trauma (Group 2) and those who were neither experiencing current psychosis nor reported childhood trauma (Group 4) – **Analyses performed to investigate this proved non-significant.**

3.2.1 Outcomes of this study

An examination of the relationship between specific psychosis symptoms, specific traumatic experiences in childhood and levels of dissociation in a sample of male patients in forensic mental health settings revealed high levels of childhood trauma and significant levels of dissociation. When level of dissociation was split into high and low dissociators (Ross & Keyes, 2004; Vogel *et al.*, 2009) almost 20% of the sample fell into the ‘high’ category. Holowka *et al.*, (2003) and Vogel *et al.*, (2009) report various prevalence rates of dissociative symptoms amongst the psychiatric population and suggest that where the primary diagnosis is schizophrenia or related psychoses, the degree of dissociation found is higher. However it is unclear how they quantify high levels of dissociation, where the question remains, when would the dissociation levels be considered ‘low’? Holowka *et al.*, (2003) mention a rate of 29% pathological dissociation found in a general psychiatric population – one could assume this relates to high scores on a dissociation measure similar to the cut-off described by Ross and Keyes (2004). With that in mind, the results found in this study in which almost one fifth of the sample of 56 male mentally disordered offenders qualifies for high dissociation, is a substantial finding. Whilst this preliminary finding could have recorded higher levels of dissociation, the result appears to fit well amongst other studies. No comparisons can be made against the specific population however as this is the first study of its kind, as far as we know.

All domains of childhood trauma within the CTQ were highly prevalent in this sample – in line with Vogel *et al.*, (2009) both physical and emotional neglect featured heavily in the reports from the sample. In particular the amounts of severe and extreme levels of different types of childhood trauma were higher than expected. Research continues to develop understanding of the implications in adulthood of neglectful parenting. Common findings include lower brain weight, smaller hippocampi volume, general neuro-developmental problems (in cases where neglect occurs in first 3 years of life), and problems with affect regulation, behavioural

difficulties and executive functioning problems (see Block & Crebs, 2005, Glaser, 2000 and Perry, 2006).

Of the 14 participants (25% of the sample) who did not report levels of childhood trauma at the 'moderate' or above on CTQ, nine of these appeared to answer the questionnaire in a socially desirable manner indicating that their answers could be a minimisation of true experiences. The scale within the CTQ indicates when an individual has provided responses that appear to describe an overly positive picture of family life that is unusual. The suggestion is that those individuals have perhaps provided answers, which reflect an unrealistic ideal rather than true family life. The result with respect to these nine participants in this sample perhaps indicates that CT is more likely to have been under-reported by participants unwilling to disclose aspects of their childhood, rather than over-reported by individuals who were unwell and reporting false memories, as Ferguson *et al.*, (2000) found.

Attachment - Secure

A surprising result was the extent to which a secure attachment pattern was endorsed by the participants of the sample as a whole. It was interesting to note that Group 3 (no P + CT) appeared to identify most with the dismissive attachment style. Due to the group sizes involved however, this must be interpreted with caution. Attachment style in general amongst this population perhaps warrants further investigation. Berry *et al.*, (2007) produced a useful review on this topic and emphasised the use of investigating attachment style in adults with psychosis to aid a deeper understanding of this condition. They highlighted several studies which discuss the benefits (especially, it seems, to secure hospital settings) to teams working with people with psychosis including improving patient-staff relationships. They maintain that by increasing levels of understanding of the functions of behaviour based on early attachment experiences, it is possible to prevent the development of possible critical or hostile perceptions of the patients (See Berry *et al.*, 2007). None of the previous studies discussed in detail in this study involved measures of attachment so the results from the present study cannot be compared.

There is no category on the RQ to indicate *disorganised* attachment pattern, and the RQ could be seen to be a relatively weak measure of overall attachment patterns if compared to the Adult Attachment Interview (Main & Goldwyn, 1998). However, the seemingly high rate of secure attachment merits some examination. It appears somewhat incongruous that despite considerable amounts of childhood trauma being reported, participants were choosing secure attachment out of a choice of four different types. It could be that the participants in the sample do not recognise attachment difficulties and see nothing unusual about their experiences. There could be a degree of idealisation within their view of others, specifically with respect to their own upbringing. Dissociation, by its very nature encourages the individual to disengage from distressing and overwhelming affect and experiences – it could be that this mechanism played a role in enabling the participants to minimise the true impact their experiences have had on their ability to form relationships with others, resulting in 36% of the sample choosing secure attachment.

Structural dissociation theory (Steele *et al.*, 2005) may suggest that during the data collection phase, patients who utilise dissociation may have presented with the ANP thus enabling them to cut off from their EP holding emotions relating to early and/or current attachment difficulties.

Attachment – Dismissive

The result in which those from Group 3 (no P + CT) appeared to report more dismissive attachments may make sense in the context of their environment. Patients within forensic mental health settings often struggle with motivation, however a common aim is to achieve a successful transfer to services with reduced levels of security and eventually to community settings. Patients when stable, therefore tend to be interested in doing all they can to convince Clinical Teams that they are ready to be transferred. Discussing abuse histories and seeking help for past traumas can be thought of as a barrier to progress even though treating their trauma issues could conversely bring the most benefit to their current and indeed their future situations. Arguably, professionals within secure forensic environments may also add to a culture of avoidance of topics relating to childhood traumas. It is only in the last

twenty years or so that society in general has been willing to accept the scale of intrafamilial abuse. Commonly, a view prevails that talking about such experiences is bad for the individual, bad for their mental health and therefore bad for their progress. When major mental illness and psychosis are added to this context, it can be seen that professionals may act with genuine intentions to avoid possibly destabilising the individual's mental state by avoiding the outstanding issue of previous abuse or neglect. This could add to the collusion in downplaying previous traumatic experiences. This culture arguably becomes problematic if professionals involved are unable to detect when circumstances where the background trauma is causing the 'psychosis' symptoms. If trauma may be treated using proven, effective psychological interventions, then levels of psychosis could be reduced, the individual's insight into their difficulties and symptoms could be improved and ultimately progress towards recovery could be made.

Current trauma symptoms and depression

The median score on the IES-R shows that for this sample, current PTSD symptoms are not being reported. According to the cut-off score on the IES-R (total score of ≥ 33), as suggested by Creamer *et al.*, (2003) only 11 participants achieved a total score of this value or higher. This would suggest that significant symptoms of PTSD are being experienced by a minority of individuals and warrants further assessment for these individuals. None of the participants in this study had primary or secondary diagnoses of PTSD. Considering the amount of early trauma reported by the sample however, the median score for the IES-R is low. Similarly, low median scores on the BDI-II indicate that depression rates among this sample are low. One explanation could be that this sample was composed of resilient individuals with safe, secure and stable upbringings preventing them from developing ill effects from the childhood experiences they reported. It could be that the general trend towards secure attachment patterns being reported supports this view. However, this explanation appears to lie at odds with clinical experience. The client group utilised in this study is generally considered to be extremely vulnerable, requiring high levels of care and observation by all involved in their protection. Considering the extent of reported

childhood trauma, as well as the psychosis reported by the sample, one might have expected to find higher levels of current PTSD symptomology. A highly relevant discussion related to this finding was presented by Timmerman and Emmelkamp (2001). When comparing levels of dissociation between prison inmates and forensic inpatients, they found greater levels of dissociation in the former group. To explain this finding they suggested that the environment may have contributed as follows:

The inpatients live in small groups and are (emotionally) supported by specialized staff. They are given much more attention in general and are actively kept in the present by the staff members. These conditions probably give them less reason or less chance to dissociate than prisoners, who are living more anonymously in large groups and for whom dissociation might be a way to cope with or escape the unpleasantness of incarceration (Timmerman & Emmelkamp, 2001; pp. 144).

In relation to the sample used in the present study, generally speaking all participants were relatively stable and had been in a secure hospital for some time. It was difficult to present information relating to average length of stay to illustrate this, due to the multi-site nature of the study. One of the medium secure hospitals used was relatively newly commissioned and received many of its patients from the maximum secure setting also used in the study. Therefore, whilst some participants may have reported a fairly short time since admission, this would not have been an accurate description of their length of time in a secure hospital setting. Time permitting, more accurate dates could have been collected from participant files. It can be seen therefore that the hospital environment and the care that patients receive may have some part to play in containing and preventing trauma symptoms arising in patients. Perhaps the nature of the hospital environment encourages patients to sublimate their trauma and to numb their feelings, or at least to 'go along' with a dissociated state of mind. The level of control within secure hospitals is high; for example, the ownership of possessions is often strictly regulated, down to the number of T-shirts or CDs a patient may own, and the number of possessions they may display. The security which accompanies the rigidity of these regulations could support the suppression of affect and may explain why symptoms of PTSD and depression were not particularly apparent.

As discussed earlier in this chapter, there is potential to explore the role of professionals and of the culture within forensic health care settings with respect to containment of affect related to PTSD and depression. Often the offence histories of forensic patients relate to severe violence and extreme sexual offences which can be accompanied by a risk of current threat due to the unstable mental states of the patients. Staff members working in these environments have a great deal to bear with respect to cognitive dissonance, managing appropriate risk assessment and vigilant care, all of which can contribute to a 'toxic' environment. It may be that an improved balance between the provision of security and treatment and a therapeutic, non-judgemental space with which to explore issues relating to early trauma is required for some individuals.

With reference to the earlier point relating to patients' aims for progression out of secure environments; opening up deep-seated vulnerabilities that cannot be classified as 'illness' and cannot be treated with a 'pill', is risky. It is perhaps understandable that some individuals would rather 'play the game', seal over and sublimate their vulnerabilities in order to maintain hope of getting out of an intensely controlled and suspicious environment. The mediating role of avoidant coping ('sealing over') and attachment patterns has been demonstrated with respect to CT (Shapiro & Levendosky, 1999). Berry *et al.*, (2007) mention that "there is already evidence to support hypothesised relationships between dismissing attachment and failure to report distress" (pp. 468). On the other hand, it is also acceptable that patients *can* utilise sufficient coping strategies in order to deal with difficulties in their lives. It is not necessary to force them to confront the traumatic experiences and coerce patients into engaging with psychological therapy and discuss all of their bad experiences. However, it remains preferable to understand the psychological mechanisms involved, and formulate appropriately to ensure that stress or further trauma does not unexpectedly trigger deterioration in mental state.

Categorising the data

Once the data was categorised into groups with respect to presence/absence of P and presence/absence of CT the descriptive statistics appeared to confirm that the manner of splitting the groups was pertinent.

PANSS positive scores differed appropriately across the groups where Group 1 (P + CT) and Group 2 (P + no CT) showed higher means for this variable compared to Group 3 (no P + CT) and Group 4 (no P + no CT). This makes sense indicating a valid split between the groups differentiated by presence or absence of positive symptoms of psychosis. Also Group 4 (no P + no CT) appeared to contain levels of results conferring its eligibility as a potential control group, except that it appears to contain the highest mean for negative symptoms on the PANSS. Importantly however Group 4 was the smallest in size (n=6) so it could not be considered an actual control group with which to compare the other groups against.

In general, due to the low sample size, it is difficult to draw conclusions from investigations involving the groups within the data. With respect to primary hypothesis 1C, the associations between all groups and high/low dissociators were non-significant indicating that the arbitrary distinctions made in the creation of the groups did not isolate the high dissociators into any one group. This was supported by both the correlation results and the Kruskal-Wallis analysis when investigating hypothesis 2A and 2B. Larger scale investigations are required, however on this occasion the null hypothesis must be accepted: that there are no significant differences between the arbitrarily defined groups and dissociation, for this sample. However the trend analysis suggested that Groups 1, 2 and 3 differed in their dissociation scores compared to Group 4 but this could be due to the size of n for Group 4 (n=6).

Interaction between trauma and dissociation

Patients who reported childhood trauma were significantly more dissociated than those who did not report early trauma. Using the group data, dissociation scores in

the groups reporting significant CT were higher, suggesting a relationship. When this relationship was looked at more closely, significant associations were found between dissociation and both emotional abuse and sexual abuse. No significant interactions were found for the remaining domains within the CTQ (emotional and physical neglect, and physical abuse). Interestingly however, CTQ total scores were not significantly associated with dissociation scores. It is unclear why this result arose but could be related to the use of this measure. The total score is not a clinically significant score as it is the trauma domains within the scale which are of importance when using this assessment.

Interaction between psychosis and dissociation

In general, patients with high scores within the PANSS positive scale were not more dissociated than those with lower scores. None of the broad subscales within the PANSS, including positive symptoms of psychosis, negative symptoms and general-psychopathology showed significant associations with the dissociation. However, when broken down according to primary hypothesis 1B, specific symptoms within the PANSS positive scale did reveal associations with dissociation scores, namely delusions and hallucinatory behaviour. It must be acknowledged however that there is potential for item contamination in the correlation between DES-II scores and hallucinatory experiences on the PANSS. This is because item 27 from the DES-II directly refers to hearing voices. Affect regulation is commonly disrupted during the psychosis process, according to stress-vulnerability models (Walker & Diforio, 1997) and the impact of trauma is known to produce a prolonged stress response and exaggerated hyperarousal responses (Van der Kolk, 2006). These models suggest that hallucinations and delusional processes could arise as misattributions of sensory stimuli and misinterpreting external cues. Hallucinations commonly relate to traumatic events (Moscowitz & Corstens, 2007) or are misinterpretations of neutral stimuli. Delusions can arise when an individual attempts to make some sense of their experiences and perceptions but stress, hypervigilance and paranoia bias the interpretations.

3.2.2 Comparisons with previous works

Spitzer *et al.*, (1997) found a correlation of .60 between DES scores and Hallucinatory behaviour in their sample of 27 patients. The present study supports this finding where positive correlations were found between dissociation scores and hallucinatory behaviour and also delusions from the PANSS positive scale. It appears that the correlation between these elements is a frequent finding in the literature and contributes more weight to the argument that auditory and visual hallucinations may best be understood as a result of dissociative mechanisms rather than manifestations of psychosis (Cullberg, 2011; Moscovitz & Corstens, 2007).

The current study found more reported trauma compared to Schäfer *et al.*,’s (2006) study which used the CTQ, PANSS and DES to examine a group of female inpatients during a repeated measures study. In the present sample of male mentally disordered offenders, 75% reported significant trauma in at least one domain, but 81% of these individuals reported trauma in two or more. However, Schäfer *et al.*’s study (2006) reported higher mean DES scores (21.0) than this study (13.65) and the PANSS positive mean score was also higher (19.70) than in the current study (14.38). These results were compiled on admission and did reduce once stabilization was achieved. There are many differences between the samples used, specifically gender and forensic history. Schaefer *et al.*,’s (2006) sample consisted of 30 females who were inpatients in a specialised ward for schizophrenia and related psychoses, in Germany. The mean CTQ score was higher than in the present study, indicating increased levels of trauma within the German sample. This may support the notion that higher levels of trauma are found in female samples. Avoidant coping was recently found to be a distinguishing factor separating females from males in their development of peritraumatic dissociation and future PTSD according to Pacella *et al.*, (2011). More systematic investigation is required however as Spitzer *et al.*, (2003) concluded that there was no difference between genders in propensity for dissociation – although this does not refer specifically to peritraumatic dissociation.

Given the high rates of trauma experienced in childhood by our population of forensic mental health patient’s in this study, and the degree to which severe

dissociation was found, this citation from Holowka *et al.*'s study (2003) is pertinent: "greater attention should...be paid to dissociative tendencies in schizophrenia patients" (pp. 90). Holowka *et al.*, (2003) investigated a similar hypothesis to one addressed in this study, in which they theorised that specific types of childhood trauma would correlate with dissociative symptoms; they also used the CTQ. Their study, as mentioned earlier, involved 27 Canadian outpatients with schizophrenia. They found a strong association between dissociation and emotional abuse and also physical abuse. Their paper centres on emotional abuse as they refer back to the stress-vulnerability model (Walker & Diforio, 1997), claiming that people with psychosis may have an over-developed sensitivity to emotional abuse and limited coping strategies to cope with its impact, especially when it occurs at an early age. They maintain that when previous studies have found associations between dissociation and sexual or physical abuse, the co-occurring emotional abuse has not been measured (for example, see Draijer & Langeland, 1999). Whilst Holowka *et al.*, (2003) found physical abuse also correlating, the present study found sexual abuse correlating with dissociation scores. It can be seen that Holowka *et al.*'s (2003) suggestions of emotional abuse being an important underpinning mechanism in the development of psychosis could be supported by this study despite differences in sample population.

To continue this thread, Vogel *et al.*'s study (2009) found that the key domains of childhood trauma to correlate with dissociation were emotional abuse and physical neglect from the CTQ. None of the other domains did so. Their sample of 80 inpatients achieved a higher mean score on the CTQ than the present study and they do not report a mean DES score. It is therefore difficult to discuss comparisons between studies with respect to dissociation. Their conclusions however relate the view that dissociation may not be the only key factor in mediating the effects of childhood trauma on adult psychopathology. This is due to the fact that their results highlighted an additional strong relationship between physical neglect and psychopathological distress which was not found in any of the other trauma domains. They suggest then, that it is childhood neglect in patients with schizophrenia which should receive more attention from researchers.

Sar *et al.*, (2010) investigated a mixture of 70 inpatients and outpatients (also mixed gender) in Turkey, each diagnosed with a ‘schizophrenic disorder’. Their mean CTQ and DES scores are comparable with those of this study, and interestingly they found no gender difference in these scores. Unlike the study presented in this thesis, Sar *et al.*, (2010) found that DES and CTQ total scores correlated significantly and they noted interactions with physical abuse and physical neglect. Over half of the Turkish sample was female and one third was from outpatient settings. Thus sample characteristics may have contributed to why total CTQ and DES scores did not correlate in this study compared to the Turkish study. Sar *et al.*, (2010) reported that scores on the CTQ were not related to positive or negative symptoms of psychosis but that dissociation was. They suggest that this possibly indicates the mediation role of dissociation where childhood trauma is related to current dissociative symptoms, and dissociation has associations with current symptoms of psychosis. Simply put this study, along with the studies mentioned above, also found evidence of a dissociative subtype of schizophrenia which could be identified independently from other schizophrenic patients.

In contrast to Sar *et al.*, (2010) Kilcommons and Morrison (2005) did find associations between childhood trauma domains and psychosis. They used a different trauma measure (Trauma History Questionnaire – adapted by Mueser *et al.*, 1998) with their sample of 32 outpatients (with diagnoses of psychosis) but found that physical abuse had associations with positive symptoms of psychosis, and that sexual abuse was specifically related to hallucinatory behaviour. This supports the model suggested by Moscowitz and Corstens (2007) which theorises that auditory hallucinations are dissociative in nature and are often related to a traumatic event for example sexual abuse, in which the voice can be identified as that of the abuser. Kilcommons and Morrison (2005) do support the view that dissociation is involved in the development of psychosis and also highlight that the failure of services (caring for individuals with psychosis) to diagnose PTSD could lead to a poorer long-term outcome for these vulnerable patients.

In summary, studies investigating the connections between childhood trauma, psychosis and dissociation are finding different results with respect to which specific types of childhood trauma are associated with dissociation and psychosis. However, strong themes relating to physical and emotional abuse and physical neglect are common within the literature. The results from this exploratory study involving patients within forensic mental health settings fits well amongst the established research and adds more support for the view that traumatic experiences and dissociative symptoms amongst this population are underreported, under recorded and often misunderstood.

3.2.3 Limitations

It is important to acknowledge limitations to this study, particularly due to its exploratory nature, so that future research can continue to tackle new ground effectively with respect to researching this area of forensic mental health.

Firstly as the sample size is small, generalizability of the findings is limited. The results must be interpreted with caution.

Recruitment was an arduous and lengthy process and there were a number of constraints. Time was a factor as the project was to be completed within a tight timeframe. The State Hospital's patient population reduced from 244 to 130 patients during the time that recruitment was taking place, thus reducing the pool of potential participants. Adherence to ethical procedures also (appropriately) limited access to participants and ensured that several professionals were involved prior to the approach of each potential participant thus adding to the time involved.

Sample size

As has been mentioned already, the sample size was relatively low and despite best efforts, the recruitment phase did not yield the original target of 75 participants. This appears to illustrate the realities of conducting clinically applied research. The population used in this study are thought to be a hard to reach client group, usually difficult to engage and by their nature, have complex presentations. The study

required that each participant take part in a comprehensive session taking on average two hours per participant.

G*Power was used to calculate an estimate of power achieved using post-hoc analysis. The output suggested that power achieved = 0.35. This supports the non-significant findings.

The sample collected was found not to be normally distributed thus generalizations to other patients in forensic mental health settings are difficult. Due to the exploratory nature the sample collected was purposefully a heterogeneous group with respect to forensic history and psychiatric diagnosis.

Limitations with respect to the assessment methods

In terms of methodology, the majority of the measures used in this study were self-report which is a less rigorous approach compared with structured clinical interviews. However, the measures used were appropriate to this type of investigation and have been widely used with clinical populations such as this. The use of specific self-report questionnaires in this study also allowed comparison with other similar studies which also used the same measures. Additionally, it was felt that participants may have been more likely to decline participation if formal interview techniques were used. In environments where patients lack control over many aspects of their lives, being able to take a questionnaire and complete it themselves might aid participation. It was felt that enabling the participants to take ownership of the information they were giving, and being transparent about the questionnaires, allowed participants to provide whatever information they wished to.

In addition to being less rigorous, some critics may argue that the truthfulness of the participant responses to self-report measures might be questioned due to the psychotic features of this population: subjects might intend to give misleading answers or respond impulsively, or purposefully misrepresent their feelings and experiences. The very nature of their psychiatric history could lead critics to question the validity of their responses on the CTQ for example. Perhaps memories of

ordinary childhoods conflict with psychotic defence mechanisms leading them to falsify accounts of trauma in their past. On the other hand, all participants in this study freely chose to take part, received no monetary reward, received detailed information about the study and signed an informed consent form. All participants were told that they could withdraw at any point. It is perhaps more accurate to assume that subjects who distrusted the purpose of the study would not participate. The built-in 'social desirability' functions within the CTQ also allowed the researcher to monitor where it appeared that extreme minimisation was occurring in the response to the CTQ. This feature cannot indicate where elaboration may have occurred. This can only be explored if individual case notes are examined. Due to time restrictions, this was not a methodological element of this study.

Whilst it may be true to say that conclusions may be limited because claims of childhood trauma were not objectively verified, it might be helpful to look at the literature on this topic. Goodman *et al.*, (1999) dismissed this concern, concluding that reports of trauma histories in patients with major mental illnesses are generally reliable. Furthermore, Fergusson *et al.*, (2000) showed that where reports were unreliable, they were mostly the result of significant minimisation and underreporting of traumatic experiences, rather than exaggerating or creating experiences. Read *et al.*, (2008) clearly stated that concerns about abuse disclosures of psychiatric patients are not evidence-based.

Limitations with categorising data

There were difficulties in forming categories (trauma, no trauma, psychosis, no psychosis, high dissociators, and low dissociators) within the data set because of the sizes of the resultant groups. Also, categorical data is not as rich as interval data and meant that making firm conclusions from the grouped data was difficult. The results may indicate that the arbitrary definitions used in this study to create the groups may not have been appropriate to explore connections between childhood trauma, psychosis and dissociation. The very heart of this study supports the notion that dissociative symptoms and psychotic symptoms overlap. Therefore designs of future

studies investigating these variables could take greater account of the complications involved in order to enable clear conclusions to be drawn.

Using correlational analyses increases the probability of making type one errors – Bonferroni’s correction was not used for multiple tests as this may have resulted in producing overly conservative results given that this was an exploratory study, as described by Kilcommons and Morrison (2005). However, the results of correlational tests of association must be cautiously accepted until replications in larger studies have been made.

Fantasy proneness

A criticism of research into childhood trauma and dissociation mentions the correlational relationship and implies that no conclusions can be made regarding a direct, causal link between early childhood traumas and dissociative symptoms. Authors such as Merckelbach and Muris (2001) criticise the widespread use of cross-sectional designs and self-report measures to collect such data. Specifically they highlight that fantasy proneness (a trait relating to profound involvement in fantasy and imagination, usually associated with good acting ability) overlaps with items on the DES-II, a popular measure of dissociative symptoms. They conducted studies using non-clinical populations (mostly student samples) and noted that:

high scores on the DES are accompanied by fantasy proneness, heightened suggestibility and susceptibility to pseudomemories. These correlates of dissociation may promote a positive response bias to retrospective self-report instruments of traumatic experiences (Merckelbach & Muris, 2001: pp. 245).

However, a useful Dutch study involving clinical samples of patients with somatoform disorders dispute Merckelbach and Muris’ (2001) claims. Van der Boom *et al.*, (2010) investigated the mediational involvement of fantasy proneness on dissociation in addition to the relationship between dissociation and trauma. They concluded that a moderate correlation was found between dissociation and reports of traumatic experiences but that the impact of fantasy proneness was minor and insignificant. They suggested that earlier studies using student samples could not be

used to directly compare or to criticise findings from clinical populations, but that these differences should be explored further.

In order to ensure rigorous research it would therefore be useful for future studies to utilise additional steps to corroborate trauma histories where possible to counteract any notion that the dissociative state increases chance of confabulating traumatic experiences. For example, this could involve looking through case notes to establish verification of past trauma. However, this method relies on the trauma having been documented in the case notes, and this is not always the case (Meuser *et al.*, 1998).

3.3 Implications

Forensic inpatients in Scotland have not been investigated in this manner before. The implications of finding such high levels of trauma and significant levels of dissociation must be considered. The results of this study should add to the call from other research, to improve the assessment and formulations of people with psychosis and ensure that past experiences of trauma are adequately attended to.

Conceptualizations of psychosis as trauma-based in some circumstances could lead to greater emphasis being placed on trauma-focused psychological treatments. It should encourage supplementary psychological training about trauma for specific staff groups working with people with psychosis and lead to greater understanding and compassion for patients who typically present as distrustful, hypervigilant, hard to engage and paranoid.

The study investigating the presence of dissociation in a sample of mentally disordered offenders, who may or may not have CT and/or symptoms of psychosis, is important clinically as well as theoretically as it has crucial implications for the assessment, formulation and treatment of these vulnerable patients.

If these findings could be replicated in larger-scale studies, it may be relevant to increase patients' understanding of dissociation. Furthermore, the fact that there are patients within secure settings in Scotland who do experience problematic

dissociative symptoms should encourage clinical teams to consider dissociation and dissociative mechanisms as a matter of course. A focus on providing psycho-educational strategies for individuals who experience dissociative symptoms should be common practice rather than a scarce resource.

3.4 Conclusion

The most striking theme to emerge from this research is the degree to which dissociation is present amongst patients in forensic mental health settings, and that there are extremely high levels of dissociative symptoms being reported by some of these individuals. Furthermore, the high rate of extreme childhood trauma also reported strengthens the argument for greater prominence of trauma-based formulations.

The subject of male, high dissociators who violently offend is an interesting one, and worthy of further examination. The development of a psychosis-like disorder which is dissociative at heart, and often accompanied by a history of childhood trauma leading to serious violent offending, is complicated to formulate if the service only reports on 'schizophrenia' and symptoms and behaviours with respect to risk assessment.

3.5 Future directions

It is felt that attachment style in general amongst this population perhaps warrants further investigation. One of the positive attributes of this study was the ability to include data on attachment style, but there appears to be a general lack of inclusion and consideration of attachment style within literature investigating dissociation, meaning that statements of comparison with other studies are limited. There is however a wealth of attachment literature which relates to early onset psychosis and first episode psychosis (Couture *et al.*, 2007; Gumley & Schwannauer, 2006) – perhaps greater communication between child and adolescent services and adult services would help to communicate and disseminate the important knowledge being generated.

There are serious, long-term implications for patients with psychosis if trauma histories are not examined by mental health professionals with an understanding of the impact early trauma can have on the development of an individual. Read *et al.* (2008) suggest a staff training programme to facilitate the understanding of how to

go about adequately collecting trauma histories, for a wide variety of staff groups who might be working with individuals with psychosis. It does seem that services should be doing more to develop systems which are appropriate for their settings. Questions relating to past events should not be confined only to admission assessments. Due to the very nature of childhood abuse and neglect, individuals can avoid, minimise and refuse to discuss their experiences, often until such time that trust is developed and a sense of safety can be communicated to them. There are, of course, individuals who will never wish to share their experiences and this is their right to do so. However, mental health professionals, particularly those working in secure forensic settings have a duty to provide the highest standard of care and treatment to patients who have committed illegal acts under the influence of poor mental health.

It appears that the reality within forensic mental health settings is that conceptualizations of schizophrenia remain rooted in traditional bio-medical theories. Whilst interventions to supplement antipsychotic medication, in the form of psychological treatments such as CBT for psychosis, are tolerated and offered in most services, it seems that more is required. The findings in research are suggesting that a wider, theoretical change is necessary, one which embraces the bio-psycho-social model (Read *et al.*, 2008) and uses the evidence from neurodevelopmental models (Read *et al.*, 2001) to improve the approaches to psychosis. Read *et al.*, (2008) reminds the reader that neuro-imaging studies demonstrate that psychotherapy can alter brain structures and processes which were damaged following trauma in childhood. Guidelines do exist for working with complex trauma, NICE guidelines are being developed, and Schneider's 'First-rank' symptoms are de-emphasised in diagnostic systems. Additional treatment outcome studies are required to further the understanding of how psychological treatments can influence trauma-based psychosis. This may begin to evidence and persuade the greater bio-medical world that there is a viable alternative to medication in some instances, which is economical, efficacious and is worthwhile supporting.

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Appendices

Lothian NHS Board

Lothian Research Ethics Committees
Deaconess House
148 Pleasance
Edinburgh
EH8 9RS



Telephone 0131 536 9000
Fax 0131 536 9346
www.nhslothian.scot.nhs.uk
Date 24 November 2009
Our Ref. 09/S1101/42
Enquiries Emily Pendleton
Extension 89028
Direct Line 0131 536 9028
emily.pendleton@nhslothian.scot.nhs.uk

24 November 2009

Miss Jessica Austin
Trainee Clinical Psychologist
The State Hospital
Lampitts Road, Carstairs,
Lanarkshire
ML11 8RP

Dear Miss Austin

Study Title: The connection between trauma, psychosis and dissociation:
An exploratory study involving mentally disordered offenders
REC reference number: 09/S1101/42
Protocol number: 2

Thank you for your letter of 05 November 2009, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information was considered in correspondence by a sub-committee of the REC at a meeting held on 13 November 2009. A list of the sub-committee members is attached.

Confirmation of ethical opinion

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

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

For NHS research sites only, management permission for research ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements.



Headquarters
Deaconess House 148 Pleasance Edinburgh EH8 9RS

Chair Dr Charles J Winstanley
Chief Executive Professor James J Barbour O.B.E.
Lothian NHS Board is the common name of Lothian Health Board

Queen's Medical Research Institute
47 Little France Crescent, Edinburgh, EH16 4TJ

DEN/JB/approval

21 January 2010

Miss Jessica Austin
3f2, 191 Morningside Road
Edinburgh
EH10 4QP



Research & Development
Room E1.12
Tel: 0131 242 3330
Fax: 0131 242 3343
Email:
R&DOffice@luht.scot.nhs.uk

Director:
Professor David E Newby

Dear Miss Austin,

Lothian R&D Project No: **2009/P/PSY/t6**

Title of Research: The connection between trauma, psychosis and dissociation: An exploratory study involving patients in forensic mental health settings.

MREC No: 09/S1101/42

LRIC No: N/A

CTA No: N/A

Eudract: N/A

PIS: Version 2 dated 05 November 2009

Consent: Version 1 dated 20 July 2009

Protocol No: Version 2 dated 29 October 2009

I am pleased to inform you that this study has been approved for NHS Lothian and you may proceed with your research, subject to the conditions below. This letter provides Site Specific approval for NHS Lothian.

Please note that the NHS Lothian R&D Office must be informed if there are any changes to the project such as amendments to the protocol, recruitment, funding, personnel or resource input required of NHS Lothian.

Substantial amendments to the protocol will require approval from the ethics committee which approved your study.

Please inform this office when recruitment has closed and when the study has been completed.

I wish you every success with your study.

Yours sincerely

A handwritten signature in black ink, appearing to read 'David E Newby', written over a white background.

Professor David E Newby
R&D Director

enc Research Governance Certificate (to be signed and returned)

cc Stewart Morgan NHS Research Scotland NRSCC

Administrator: Elaine O'Donnell
Telephone Number: 0141 232 9448
Fax Number: 0141 211 2811
E-Mail: elaine.o'donnell2@ggc.scot.nhs.uk

16 April 2010

Miss Jessica Austin
Trainee Clinical Psychologist
The State Hospital
Lampitts Road
Carstairs
Lanarkshire ML11 8RP

R&D Management Approval

Dear Miss Austin,

Project Title: The connection between trauma, psychosis and dissociation: An exploratory study involving patients in forensic mental health settings.

Investigator: Miss Jessica Austin

R&D Reference: GN08AM36 NRS09/MH23

Protocol: Version 2.0; 29/10/09

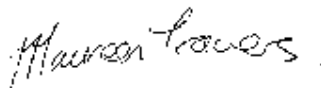
I am pleased to confirm that Greater Glasgow & Clyde Health Board is now able to grant **Management Approval** for the above study.

As a condition of this approval the following information is required during the lifespan of the project:

1. SAES/SUSARS – If the study is a **Clinical Trial** as defined by the Medicines for Human Use Clinical Trial Regulations, 2004 (CTIMP only)
2. Recruitment Numbers on a quarterly basis (not required for commercial trials)
3. Any change of Staff working on the project named on the ethics form
4. Change of CI
5. Amendments – Protocol/CRF etc
6. Notification of when the Trial / study has ended
7. Final Report
8. Copies of Publications & Abstracts

Please add this approval to your study file as this letter may be subject to audit and monitoring.

Yours sincerely



Dr Maureen Travers
Research Co-ordinator

Delivering better health

www.nhs.uk

Jessica Austin
Trainee Clinical Psychologist
Psychology Department
The State Hospital

Date 3 December 2009
Our Ref SCY/aa
Your Ref
Enquiries to Ann Abernethy
Ext No 2221

Dear Ms Austin

**Re: To be or not to be: The Relationship Between Psychosis, Trauma and
Dissociation**

Having considered the views of the Research Committee and noted that you have obtained Ethical Approval, I write to give you Managerial Approval to proceed with your project. This is subject to you fulfilling the requirements of the Ethics Committee and of the State Hospital Research Committee.

May I take this opportunity to wish you every success in your endeavour.

Yours sincerely



Dr Steven C Young
Associate Medical Director

cc. Jamie Pitcaim, Research and Development Manager.
Dr Lindsay Thomson, Medical Director.



Consent form to approve participants for involvement in research study:
'Connection between Trauma, Psychosis and Dissociation: An exploratory study
involving mentally disordered offenders'

Dear Dr _____,

I am writing to ask your view on whether the following patients could give their consent to be involved in some research. I also wish to give you the opportunity to let me know if you would have any concerns about their participation. The psychologist in your clinical team has suggested the following list of patients who fulfil the inclusion criteria and who might be potential participants in this study.

This exploratory study aims to investigate whether a higher level of dissociation is found in patients with a significant childhood trauma history, who have developed psychosis, compared with those patients who developed psychosis and who did not suffer from trauma in childhood. This study also aims to find further evidence in support of a dissociative subtype of schizophrenia with a traumatic aetiology. There is currently no intervention in place for specific 'trauma-focused' treatment of traumatic sequelae or disorders at the State Hospital. If research continues to demonstrate significant numbers of patients are suffering from the effects of trauma, proposals to target these issues may be given more weight. The State Hospital research committee has approved this study.

Implications:

- The results of this study will have implications for the treatment of patients with psychosis.
- It may shed more light on the care and treatment for patients who appear to have a low response to anti-psychotic medication.
- It may enable the clinical teams to improve their formulation of the individual and to carry out interventions which better suit the needs of the patient

Participants will be provided with an information sheet and the researcher will go through a consent form with them. They will be asked a series of questions from standardised questionnaires, in a structured interview. This may take up to 2 hours 30 minutes but is likely to take less time than this. Interviews will be broken up into 2-3 sessions as appropriate.

The researcher has 6 years experience working clinically with mentally disordered offenders and will take any advice offered by the clinical team. She will fully comply with all security procedures. The ward psychologist is aware of the study and will be available to provide follow-up support to participants if this is requested by the patient.

I would be very happy to meet with you (and the clinical team) in person to discuss this research in more detail.

The following is a list of your patients who have been suggested by the psychology department – please indicate your view on their ability to provide consent by ticking the box, or indicate with a cross if you do not consider the patient to have capacity to consent to this study, or if you have any concerns about their participation:

Name of patient	Ward	Tick to indicate consent
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		

Please do not hesitate in contacting me if you have any queries about this request. Morag Slessor is the clinical supervisor for this project and would be happy to be contacted also (ext. 2055).

Many thanks and best wishes

JESSICA AUSTIN – Chief Researcher
Trainee Clinical Psychologist
The State Hospital
01555 840293 ext. 4322 (Mondays/Thursdays)
Jessica.Austin@tsh.scot.nhs.uk



Patient Information Sheet

'The Connection between Trauma, Psychosis and Dissociation: An exploratory study involving patients in forensic mental health settings'

Dear Participant,

Your clinical team have said that you could be involved in this project if you wanted to be – it's completely voluntary.

Before you decide it is important for you to understand why the study is being done and what it will involve. Please take time to read the following information carefully. Talk to others about this project if you wish.

Take time to decide whether or not you wish to take part.

What is the study about?

- The project is looking at whether difficult experiences as a child, affect you as an adult, particularly in relation to mental illness. It is hoped that if we can understand this better, we can provide better treatments.
- It is thought that sometimes people develop coping strategies when they are young, to deal with difficult experiences. When they are adults, it may be that these coping strategies have a connection with symptoms of mental illness. This is what we are trying to find out.
- You will be asked some questions about your mental health now and about your experiences when you were a child.

Why have I been chosen?

- This study is being carried out at The State Hospital, the Rowanbank Clinic, and The Orchard Clinic. Your clinical team has identified you as a potential participant. Your RMO has also given permission for us to approach you.

Do I have to take part?

- It is up to you to decide. We will describe the study and go through this information sheet, which we will then give to you. We will then ask you to sign a consent form to show you have agreed to take part.
- If you decide to take part you are still free to withdraw at anytime and without giving a reason. This would not affect your care or treatment, or your legal rights.

What would I have to do?

- If you agree to take part, Jessica Austin (Trainee Clinical Psychologist) would come and see you and you can ask her any questions about the study.
- Jessica will arrange a time that is good for you, to come back and start some of the questionnaires, in a quiet room on your ward.

- There are 6 questionnaires she will go through with you – 5 of them take only a few minutes each and one is a bit longer. Jessica will probably come to see twice. For most people the questions should take about 1 hour and 30 minutes but, for some it may take up to 2 hours 30 minutes to finish the conversation.
- If you find it difficult to concentrate, or would prefer to be seen for a number of shorter sessions this can also be arranged. It is fine for you to ask Jessica to come back and finish the questions at another time if you want to stop. You can also be given extra time if you need it.
- **You may choose not to answer any question, at any time.** You can just ask to skip that question. This is absolutely fine.
- After the meetings have finished, you can speak with your psychologist, if you would like. This is your choice.

Where can I find out more?

- You can ask your key worker to contact Jessica or your Psychologist to get more information.
- Please ask your key worker, the psychologist on your ward or RMO if there is anything that is not clear or if you would like more information. In particular, Morag Slessor is a psychologist you may not know, but she can also answer any questions you may have.

Will my taking part in the study be kept confidential?

- All information that is collected about you during the course of the study will be kept strictly confidential. Any information about you will have your name removed so that you cannot be recognised from it.
- Your RMO will be contacted and told that you will be taking part in the study. If you disclose information during the interview that causes concern about your well-being, or the well-being of others, this information will be shared with your RMO and Clinical Team.
- When the project is written up for publication, all names and identifiers will be removed so there is no possibility of you being identified.

Thank you for taking the time to read this Information Sheet and for considering taking part in this study – please feel free to ask more questions!!

Jessica Austin – Trainee Clinical Psychologist

