

**TRAUMA AND PSYCHOSIS: INVESTIGATING DISSOCIATION AND SELF-  
CONCEPT CLARITY**

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*'Dyfal Donc a Dyr y Garreg'*

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## 1.0 Abstract

**Background:** There is an association between childhood trauma and psychosis, with recent studies investigating potential causal mechanisms. Drawing upon the dissociation and social psychological literature, the current study examined the potential role of structural aspects of self in explaining relationships between maltreatment in childhood and psychosis.

**Method:** Twenty-nine individuals with first-episode psychosis completed questionnaires regarding childhood trauma, dissociation and self-concept clarity— a measure of self-concept structure. Results were compared against 31 non-clinical participants, matched on specific demographic variables. Mediation analyses examined the extent to which the effects of childhood trauma on increasing psychosis risk could be explained through dissociative experiences and self-concept clarity.

**Results:** High rates and levels of maltreatment were found in the psychosis sample. Additionally, clinical participants showed more dissociation and less self-concept clarity. Preliminary evidence suggested dissociation and self-concept clarity may both relate to the latent variable of 'self-concept integration', potentially influenced by negative childhood experiences. Mediation analysis suggested the influence of physical neglect in increasing the likelihood of experiencing psychosis was explicable through the effects of increased dissociation. Self-concept clarity mediated the relationship between psychosis and total childhood trauma, emotional abuse, physical abuse, emotional and physical neglect.

**Conclusions:** The study provides further evidence of the link between childhood trauma and psychosis. Furthermore, preliminary evidence was found that dissociation and self-concept clarity may both relate to an underlying concept of self-concept integration. Results suggested self-concept integration is adversely affected by negative childhood experiences, and that this may explain the influence of childhood trauma increasing psychosis risk. Methodological limitations, clinical implications and suggestions for future research are considered.

**Keywords:** Childhood trauma, psychosis, mediation, dissociation, self-concept clarity.

## **2.0 Introduction**

### **2.1 Overview**

A number of factors are thought to be associated with the onset of psychosis. However, the relationships between some of these remain unclear. This thesis focuses upon how one factor, childhood trauma, might be mediated by self-concept clarity and dissociation. This chapter offers definitions for the concepts of psychosis, self, childhood trauma (CT) and dissociation. This provides context for a subsequent review regarding CT and the development of psychosis. Evidence suggests a relationship between these experiences, with theory and research focussing upon potential causal mechanisms. It will be argued that whilst some approaches have implicitly considered the notion of 'self', this has mainly focused on knowledge components (e.g. beliefs). Beginning with 'dissociation', the significance of structural elements of the self-concept in explaining the relationship between CT and psychosis will be considered. The notion of 'integration' within the self-concept will be applied to synthesise diverse literature. An argument will be presented that CT may disrupt structural elements of an individual's self-concept, thereby partly explaining psychosis vulnerability.

### **2.2 Literature search strategy**

A literature search was conducted up to 31<sup>st</sup> May 2011. Search terms and databases used can be found in Appendix A.

### **2.3 Definition of terms**

#### **2.3.1 Psychosis**

Various definitions of psychosis exist, although none are universally accepted (American Psychiatric Association [APA], 1994). However, psychosis often describes a

‘loss of contact with reality’ (Royal College of Psychiatrists, 2010). The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, APA, 2000) proposes nine ‘psychotic disorders’, with schizophrenia being the most widely known.

Psychosis typically refers to hallucinations and delusions (APA, 2000). Some authors (e.g. Crow, 1980) have distinguished between such ‘positive symptoms’ of schizophrenia (experiences not ‘normally’ observed) and ‘negative symptoms’, which describe the absence of, or deficit in, ‘normal’ experiences/behaviours (e.g. lack of motivation). Other researchers suggest a third grouping of symptoms termed ‘disorganisation’, characterised by thought disorder (Liddle, 1987; Peralta, Cuesta & Farre, 1997). However, ‘positive’ symptoms are necessary and sufficient criteria for psychosis diagnoses; consequently, this thesis’ conceptualisation of psychosis relates specifically to these.

### **2.3.2 Hallucinations**

The DSM-IV-TR (APA, 2000) defines a hallucination as “... [a] sensory perception that has a compelling sense of reality of a true perception, but occurs without external stimulation of the relevant sensory organ.” (p.823). Such perceptions can occur across all sensory modalities, including auditory, visual, tactile, gustatory and olfactory hallucinations.

### **2.3.3 Delusions**

The DSM-IV-TR (APA, 2000) defines a delusion as:

*“A false belief based on incorrect inference about external reality that is firmly sustained despite what almost everyone else believes and despite what constitutes incontrovertible*

*and obvious proof or evidence to the contrary. The belief is not one ordinarily accepted by other members of the person's culture or subculture (e.g. it is not an article of religious faith"). (p. 821).*

#### **2.3.4 Childhood trauma (CT)**

This thesis conceptualises 'childhood' as the period of life up to aged 18. CT can be defined as "*a physical or psychological threat or assault to a child's physical integrity, sense of self, safety or survival or to the physical safety of another person significant to the child*" (Moroz, 2005, p.2). CT encompasses experiences such as emotional, physical and sexual abuse (Overcoming, 2008). Researchers have also highlighted the deleterious effects of emotional and physical neglect (e.g. Glaser, 2002; Kaplan, Pelcovitz & Labruna, 1999). Consistent with other literature (e.g. Bendall, Jackson, Hulbert & McGorry, 2008), this thesis includes emotional/physical abuse and neglect, and sexual abuse within the definition of CT.

#### **2.3.5 Childhood sexual abuse (CSA)**

According to Bernstein et al. (2003) CSA involves "*sexual contact or conduct between a child younger than 18 years of age and an adult or older person*" (p.175). However, issues of coercion and consent are important, especially because the legal position in the United Kingdom is that individuals can provide consent aged 16 years (Sexual Offences Act 2003).

### **2.3.6 Physical abuse (CPA)**

Physical abuse concerns “*bodily assaults on a child by an adult or older person that posed a risk of, or resulted in, injury*” (Bernstein et al. (2003), p.175).

### **2.3.7 Emotional abuse (CEA)**

Emotional abuse constitutes “*verbal assaults on a child’s sense of worth or well-being or any humiliating or demeaning behaviour directed toward a child by an adult or older person*” (Bernstein et al. (2003), p.175).

### **2.3.8 Physical neglect (CPN)**

Physical neglect is, “*the failure of caretakers to provide for a child’s basic physical needs, including food, shelter, clothing, safety, and health care (including poor parental supervision... if it places children’s safety in jeopardy)*” (Bernstein et al. (2003), p.175).

### **2.3.9 Emotional neglect (CEN)**

Emotional neglect constitutes, “*the failure of caretakers to meet children’s basic emotional and psychological needs, including love, belonging, nurturance, and support.*” (Bernstein et al. (2003), p. 175).

## 2.4 Prevalence of trauma

Up to a quarter of children experience trauma before the age of 16 (Costello, Erkanli, Fairbank & Angold, 2002). Roughly 14% of men and 32% of women report CSA, and around one-fifth of either gender have experienced physical abuse (Briere & Elliot, 2003). Dong et al. (2004) found that 10.2%, 14.8% and 9.9% of a general population sample reported emotional abuse, emotional neglect, and physical neglect, respectively; furthermore, these experiences tended to co-occur.

## 2.5 Dissociation

Dissociation is a failure to integrate experiences such as consciousness, memory, identity, and perceptions of the environment, which are usually associated (APA, 2000; Janet, 1889. Cited in Kennedy et al., 2004; Spiegel & Cardeña, 1991). Consequently, the notion of impaired psychological '*integration*' is central to the concept (Bernstein & Putnam, 1986). However, some authors highlight the plurality of meanings that dissociation has been given (Spitzer, Barnow, Freyberger & Grabe, 2006). Cardeña and Gleaves (2007) suggest dissociation can refer to the activation of behavioural routines, a lack of mental content (i.e. 'blacking out'), recollection of forgotten traumatic memories, and memory interference, amongst others. Dissociation can also be a hypothetical construct to describe a specific defence mechanism which purportedly reduces awareness of intolerable information (Kennedy et al., 2004).

Concerns regarding dissociation's conceptual clarity have prompted refinements. Unitary models suggest a single concept of trait dissociation, and this led to the development of the widely used Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986), premised on dissociation existing on a continuum from benign (e.g. absorption) to pathological (e.g. amnesia) experiences. However, other authors suggest

subdividing dissociation into qualitatively different forms (Brown, 2006; Holmes et al., 2005; Spitzer et al., 2006).

In the present thesis, dissociation is defined as *structural* disintegration of mental functions. Van der Hart, Nijenhuis, Steele and Brown (2004) present a structural dissociative model, subsequently extended by Ross (2008). This suggests that a healthy psyche is *integrated*, in that the 'executive self' (alternately titled 'ego' or 'conscious mind') is unified and can shift smoothly between different social roles and states, accompanied by a sense of continuity of memory and identity. However, a dissociated psychological structure is characterised by a disintegrated executive self, where different modules (or 'subselves') are fragmented, disconnected and in conflict (Ross, 2008). Although dissociative identity disorder (DID) constitutes extreme structural dissociation, Ross (2008) suggests the model accounts for other mental health difficulties including a subgroup of schizophrenia.

## **2.6 Self and self-concept**

Full consideration of 'self' is beyond the scope of the current thesis; instead, this thesis will focus upon literature most relevant to an understanding of psychosis. Consequently, other perspectives will be omitted (see Baumeister, 1999; Brewer & Hewstone, 2004a; and Kircher & David, 2003 for further discussions).

Any attempt at defining 'self' is bound up in philosophical and cultural perspectives. Despite such difficulties, workable psychological definitions have been proposed, representing useful starting points for research. For example, Owens (2003) describes 'self' as "*...an organized and interactive system of thoughts, feelings, identities, and motives that (1) is born of self-reflexivity and language, (2) people*

*attribute to themselves, and (3) characterize specific human beings*"(p. 206). The key to self-hood, according to Owens' (2003) definition, is the ability through language to reflect upon ourselves and to view oneself as a distinct individual.

Consequently, it is suggested that self is not a 'thing' which exists independently of concepts or language. Rather, contemporary psychology views self as an abstracted dynamic system concerning cognitive or mental representations. This encompasses memories, collective ideas, images, and beliefs that an individual holds about themselves (Bentall, 2003). One fundamental aspect of self is that of 'self-concept', defined as *'the totality of an individual's thoughts and feelings about... his or her self'* (Rosenberg, 1979. p.7). However, such perspectives may be limiting in their focus upon knowledge components of the self-concept. Following Owens' (2003) consideration of self as an organised interactive system, it is suggested that self-concept is not unitary. A distinction has been made between the contents of one's self-concept (e.g. beliefs, self-evaluations) and its organisation (Campbell, Assanand & Di Paula, 2003; Stopa, 2009a, 2009b). Structurally, the literature recognises that the self-concept involves multiple representations or constituent parts (Markus & Wurf, 1987; Stopa, 2009a, 2009b). These may include reference to social roles and identities, in addition to attributes. These are not equivalent: Some may be positive whilst others are negative, whereas the focus of each may reflect past, current or future (possible) concerns from the perspective of the individual or those attributed to others.

This dynamic and multidimensional view of self-concept represents a significant move away from generalised stable conceptualisations, which failed to account for the subtleties in behaviour to which it was putatively related (Markus & Wurf, 1987). Viewing self-representations as fluid, the concept of 'working self' has been proposed to understand how representations 'on-line' at any particular point influence interpersonal and intrapersonal experience (Markus & Wurf, 1987). Consequently, the concept of



'self-as-system' is suggested as a dynamic multidimensional cognitive construct. This system incorporates structural and process aspects in addition to knowledge, and influences how individuals understand their experiences, including social information processing. As an experience, this multi-dimensional self-system might underpin shifting, and potentially conflicting, self-conceptualisations across different roles and contexts. The self-concept is only meaningful in the context of a person's relationship to others (Brewer & Hewstone, 2004b; Markus & Wurf, 1987). Clearly, the ideas, images, and beliefs which underpin mental representations develop through personal experience and social interaction: Put simply, self is a social product (Cooley, 1902; Owens, 2003).

In summary, the self-concept is viewed not as a unitary entity, but rather a multi-dimensional and multi-faceted dynamic system (Baumeister, 1999; Markus & Wurf, 1987). Psychological theory, especially that concerning information processing and cognitive accounts of psychopathology has focussed mainly upon the contents of self (e.g. beliefs, ideas, and goals) and how these may relate to specific difficulties. However, social psychology highlights the potential importance of process and organisational aspects of the self-concept upon psychological well-being (Campbell et al., 2003; Donahue, Robins, Roberts & John, 1993; Higgins, 1987; Linville, 1985; Stopa, 2009a, 2009b). These emphasise how one organises information about oneself, its relatedness, and the degree of integration or unity within the self-concept. Self-concept clarity (a measure of self-concept integration) may be important in relation to psychosis (Preston, 2008), with this defined as the "extent to which self-knowledge is clearly and confidently defined, internally consistent, and temporally stable" (Campbell et al., 1996. p. 141).

## **2.7 The prevalence of psychosis**

The National Survey of Psychiatric Morbidity in the UK found a population prevalence of probable psychotic disorder of five per 1000 for people aged 16 to 74 years (Singleton, Bumpstead, O'Brian, Lee & Meltzer, 2000). However, psychosis-like experiences are common across the general population (e.g. Bentall & Slade, 1985; Johns & van Os, 2001; van Os, Hanssen, Bijl & Ravelli, 2000). Posey and Losch (1983) found that 71% of a student sample reported auditory hallucinations, and Barratt and Etheridge (1992) found 30 to 40% of a large student sample reported such experiences. Furthermore, paranoid thoughts are reported by 10-15% of the general population (Freeman & Garety, 2006). Although contested (e.g. Lawrie, Hall, McIntosh, Owens & Johnstone, 2010), such research underpins suggestions that psychosis exists on a continuum (Johns & van Os, 2001, van Os et al., 2000; van Os, Linscott, Myin-Germeys, Delespaul & Krabbendam, 2009).

## **2.8 Differing accounts of psychosis**

Theories regarding the aetiology and maintenance of psychosis are too numerous to cover comprehensively. However, such perspectives can be divided into biological, psychological or social accounts (Engel, 1977; Zubin & Spring, 1977) and various versions of a putatively integrated bio-psycho-social model have been proposed. Although these domains are not mutually exclusive, they are often regarded as such and their relative contribution and primacy concerning psychosis is debated (see Gleeson, Killackey & Krstev, 2008).

### **2.8.1 The biological basis**

Biological theories of psychosis have implicated inherited genes (e.g. Elston & Campbell, 1970), the neurotransmitters dopamine, serotonin, glutamate and *c*-aminobutyric acid (see Howes & Kapur, 2009, for a recent review of the ‘dopamine hypothesis’), and neurodevelopment (Fatemi & Folsom, 2009; Marengo & Weinberger, 2000). Despite much research, biological ‘causes’ of psychosis have proved elusive; even modest findings from the research corpus have been criticised from several perspectives (e.g. Bentall, 2003, 2009; Crow, 2008). In their strongest incarnation, biological explanations posit little or no role for social and environmental factors (e.g. Petronis, 2004). Concerns about such biological reductionism have prompted assertions that an authentic ‘bio-psycho-social model’ is necessary to understand psychosis (Read, Fink, Rudegeair, Felitti & Whitfield, 2008).

### **2.8.2 Environment, society and psychosis**

Early studies suggested that psychosis diagnoses such as schizophrenia were stable across time and place, with such apparent universality bolstering genetic explanations (e.g. Jablensky et al., 1992). However, more recent research has identified variation in the incidence of psychoses within and across countries (e.g. Coid et al., 2008; Kirkbride et al., 2006). Such variation has implicated psycho-social aetiological factors such as urbanicity, migration and ethnicity in psychosis development (e.g. Bhugra et al., 1997; Cantor-Graae & Selten, 2005; Coid et al., 2008; Jarvis, 2007; Kirkbride et al., 2006; Sundquist, Frank & Sundquist, 2004; van Os, Hanssen, Bijl & Vollebergh, 2001).

### **2.8.3 Psycho-social adversity**

A plausible factor underpinning increased psychosis diagnoses in urban and migrant populations is increased exposure to stressors such as crime, discrimination, social disparity, adversity/defeat, powerlessness, cultural isolation, and impact upon family structure (Cantor-Graae & Selton, 2005; Mallett, Leff, Bhugra, Pang & Zhao, 2002; Veling et al., 2007; Veling et al., 2008). Protective factors which moderate such adversity should, therefore, confer reduced risk of psychosis. Indeed, migrant groups which maintain protective cultural, ethnic and religious cohesion show reduced psychosis risk compared to those that do not (Coid et al., 2008). Research therefore supports the idea of psycho-social adversity being an important risk factor in psychosis development.

### **2.9 The link between trauma and psychosis**

One important aspect of psycho-social adversity is that of trauma. There is general recognition that psychosis and associated diagnoses often follow stressful events (Bebbington et al., 1993; Cullberg, 2003; Romme & Escher, 1989). Individuals with psychosis report significant rates of traumatic experiences (e.g. Convoy, Weiss & Zvěřina, 1995; Mueser et al., 1998), with 34 and 98% of people reporting such experiences (Morrison, Frame & Larkin, 2003; Mueser et al., 1998; Schäfer et al., 2006): This variation potentially relates to how trauma is conceptualised and measured (Bendall, Jackson & Hulbert, 2010). Comparing psychotic individuals with and without trauma, the traumatised groups show increased symptoms (Neria, Bromet, Carlson & Naz, 2005), suicide attempts (Üçok & Bikmaz, 2007), anxiety, depression, hopelessness and dissociation (Mulholland et al., 2008), and poorer social functioning (Davidson, Shannon, Mulholland & Campbell, 2009). Recently, Bechdolf et al. (2010) found that people assessed as 'ultra-high risk' of developing psychosis on the Comprehensive Assessment

of At-Risk Mental State (CAARMS) were more likely to make transition to psychosis if they reported past sexual trauma.

### **2.9.1 Is there a specific association between childhood trauma and psychosis?**

Recent literature has delineated specific traumatic experiences and their association with psychosis. A broad distinction has been drawn between events occurring in adulthood and childhood. Regarding CT, adverse experiences which have been focussed upon include sexual, physical and emotional abuse, and neglect (Read et al., 2008). Although CT is associated with the development of many psychiatric diagnoses (e.g. Foa, Keane & Friedman, 2009; Hutchings & Dutton, 1993; Kendall-Tackett, Williams & Finkelhor, 1993; Simpson & Miller, 2002; Thompson et al., 2003), such experiences may be more of a risk factor for psychosis (Read, Goodman, Morrison, Ross & Aderhold, 2004; Spauwen, Krabbendam, Lieb, Wittchen & van Os, 2006).

### **2.9.2 Focus of the current review**

Numerous reviews have explored potential links between trauma and psychosis (e.g. Bendall et al., 2008; Bendall et al., 2010; Goodman, Rosenberg, Mueser & Drake, 1997; Hammersley, Read, Woodall & Dillon, 2006; Krabbendam, 2008; Larkin & Read, 2008; Manning & Stickley, 2009; Morgan & Fisher, 2007; Morrison et al., 2003; Morrison & Ross, 2005; Read, 1997; Read et al., 2008; Read, van Os, Read & Ross, 2003; van Os, Kenis & Rutten, 2010). Due to space limitations, the recent comprehensive reviews of Bendall et al. (2008/2010) will be discussed, and exemplar research critiqued.

### **2.9.3 Histories of childhood trauma in psychosis groups**

There are high self-reported histories of CT in people with psychosis (e.g. Álvarez et al., 2011; Gearon, Kaltman, Brown & Bellack, 2003; Schäfer et al., 2006) and those deemed at heightened clinical risk for such experiences (Thompson et al., 2009). However, in a recent review of 26 such studies, Bendall et al. (2008) found that the prevalence of CT ranged between 28% and 73%, whilst CSA ranged between 13% and 61% and CPA between 10% and 61%. As discussed by Bendall et al. (2008), such variability may be explained by methodological artefacts since studies have relied on heterogeneous methods of defining and assessing CT in differing samples. In particular, studies in this area have tended to focus upon CPA and CSA (e.g. Janssen et al., 2004; Nettelblatt, Svensson & Serin, 1996; Spataro, Mullen, Burgess, Wells & Moss, 2004).

Notwithstanding this variability, claims regarding causality between CT and psychosis based upon studies without reference to a control group are unfounded. Bendall et al. (2008) therefore identified 12 studies which more meaningfully examined self-reported trauma across psychosis and control groups. Whilst they discerned no clear pattern in rates of CT reported by psychosis groups compared to psychiatric controls, in the four studies which compared CT in psychosis versus non-clinical groups, three found that the psychosis group reported more (Friedman & Harrison, 1984; Honig et al., 1998; Nettelblatt et al., 1996), and one found the opposite (Convoy et al., 1995). Such results generally support the idea of CT contributing to psychosis risk, although implying that the link may not be specific to psychosis.

### **2.9.4 Large-scale population studies**

Read et al. (2008) propose a hierarchy of evidence for studies investigating CT and psychosis, with large-scale general population studies, especially those of a

prospective design, being superior to cross-sectional research. Fifteen general population studies conducted across six different countries are available (Arseneault et al., 2011; Bebbington et al., 2004; Cutajar et al., 2010; Houston, Murphy, Adamson, Stringer & Shevlin, 2008; Janssen et al., 2004; Kelleher et al., 2008; Lataster et al., 2006; Scott et al., 2007; Shevlin, Dorahy & Adamson, 2007a; Shevlin, Dorahy & Adamson, 2007b; Shevlin, Houston, Dorahy & Adamson, 2008; Shevlin, Murphy, Dorahy & Adamson, 2007; Spauwen et al., 2006; Spataro et al., 2004; Whitfield, Dube, Felitti & Anda, 2005). Of these, only Spataro et al. (2004) did not find more CT in their psychosis groups, although Houston et al. (2008) found that CSA related to psychosis only in interaction with cannabis use. Space precludes full discussion of these studies; however, an exemplar of the research in this area will be presented which has supported the hypothesis that CT causes psychosis. Furthermore, the Spataro et al. (2004) paper will also be discussed.

Janssen et al (2004) conducted a large-scale, prospective population study ( $N = 4085$ ). Participants aged 18-64 were assessed at baseline for mental health issues (including psychosis), as well as emotional, physical, psychological or sexual abuse before the age of 16. The development of any psychosis at three years post baseline was 3.6 times as likely in those who reported CT, compared to those who did not. This figure rose to 13 for more intense 'pathological' levels of psychosis, and to 11.5 for those whose psychosis experiences suggested a need for mental health care. These associations remained large and significant even when factors such as age, gender and presence of baseline mental health difficulties were controlled for, suggesting CT was an independent risk factor for subsequent psychosis.

As discussed, one large-scale prospective study found no association between CT and psychosis. Spataro et al. (2004) identified 1612 children who had experienced sexual abuse, confirmed via medical examination. This group was followed up to determine any

subsequent contact with mental health services, and results were compared against a general population control group. Spataro et al. (2004) found an association between CSA and subsequent mental health difficulties, including affective disorders, personality disorders, anxiety and acute stress disorders. However, although males and females were, respectively, 1.3 and 1.5 times more likely to develop 'schizophrenia disorders', this was not statistically significant, "*suggesting no support for an association between child sexual abuse and psychosis*" (Spataro et al., 2004. p. 418).

However, methodological issues existed in Spataro et al's (2004) study which may explain the lack of such an association. Firstly, although the use of a cohort with confirmed abuse avoided reliability issues associated with self-report, this then focussed upon a group whose abuse had been recognised and dealt with via the criminal justice system. Consequently, this may have led to interventions which conceivably reduced the risk of developing psychosis (Read et al., 2005). Spataro et al. (2004) also recognise that a major systematic bias in their study was a failure to account for CSA in their control group. Furthermore, individuals in the follow-up CSA group were younger than the average age of onset for psychosis, and therefore had not reached the age-range associated with high psychosis risk; however, the control group were significantly older, and therefore more likely to have developed psychosis (Read et al., 2005). These issues potentially account for Spataro et al's failure to find any association between CSA and psychosis. Interestingly, a recent 'methodologically improved' large scale study by the same group found that CSA involving penetration was a significant risk factor for developing psychosis (Cutajar et al., 2010).

### **2.9.5 A causal relationship?**

Reviews in the area suggest that CT may cause psychosis (e.g. Goodman et al., 1997; Larkin & Read, 2008; Morrison et al., 2003). However, there are other possible



relationships between these experiences: Morrison et al. (2003) consider evidence that psychosis can cause PTSD and post-traumatic symptoms, and suggest that PTSD and psychosis represent similar constructs, differing in the cultural acceptability of interpretations of intrusions. Furthermore, Goodman et al. (1997) suggest that psychosis may put people at risk of experiencing trauma, in that impaired reality testing renders people more vulnerable to abuse.

Numerous studies suggest psychosis risk increases as a function of the frequency and/or cumulative types of CT (Read et al., 2008). For example, Shevlin et al. (2007a) report that cumulative traumas increase the likelihood of having a psychosis diagnosis. A particularly profound example of this 'dose-response' relationship was reported by Janssen et al. (2004), whereby the likelihood of developing a needs-based diagnosis of psychosis was roughly 30 times higher for those individuals reporting the most frequent abuse. Such dose-response findings lend considerable weight to suggestions of CT *causing* psychosis (Bradford-Hill, 1965).

### **2.9.6 Limitations of the research**

Although a causal association between CT and psychosis has been suggested, there are important caveats. Much of the research in the area is cross-sectional, often utilising no, or unsuitable, control groups. Even amongst the large-scale general population studies, most have utilised retrospective designs and small sample sizes (e.g. Bebbington et al., 2004; Shevlin et al., 2007a), thereby complicating causal inference. Indeed, even regarding prospective studies, reverse causality may be the case, in that children who subsequently develop psychosis may be developmentally vulnerable to abuse (Bendall et al., 2008).

### 2.9.7 Summary

Despite conceptual and methodological issues, there exists an association between childhood trauma and psychosis: Available evidence suggests that this link may be causal. This conclusion is consistent with most available literature reviews (e.g. Bendall et al., 2008; Hammersley, Read, Woodall & Dillon, 2008; Manning & Stickley, 2009; Morrison et al., 2003; Read et al., 2005; Read et al., 2008; Read & Ross, 2003). However, controversy regarding this remains, with one review suggesting that *'the evidence that childhood trauma causes psychosis is controversial and contestable'* (Morgan & Fisher, 2007, p.8). However, that the majority of studies support the link suggests an important effect. Further evidence for this association comes from analogue studies investigating sub-clinical psychosis-like experiences in the general population, suggesting that physical and sexual abuse are related to paranoia/suspiciousness and unusual perceptual experiences (Steel, Marzillier, Fearon & Ruddle, 2009). Furthermore, a recent longitudinal study by Galletly, Van Hoof and McFarlane (2011) found that exposure to multiple natural traumas, as opposed to one major trauma, was associated with increased psychosis risk.

Importantly, there are no obvious differences in rates of CT across psychosis diagnoses (Bendall et al., 2008), suggesting that CT underpins vulnerability for psychosis experiences, as opposed to diagnosis (e.g. Gaudiano & Zimmerman, 2010). Additionally, CT may be most related to positive psychosis symptoms such as hallucinations and delusions (Manning & Stickley, 2009; Read et al., 2008; Read, Rudegeair & Farrelly, 2006), with limited evidence of any link with negative symptoms (Morgan & Fisher, 2007; Üçok & Bikmaz, 2007), thought disorder or catatonia (Read et al., 2006).

## **2.10 Specific childhood traumas**

Detailed examinations of the relative effects of different types of trauma on specific psychosis symptoms have recently been proposed (e.g. Bentall & Fernyhough, 2008). Research in this area has predominantly highlighted the potential link between sexual abuse and psychosis, particularly hallucinations (e.g. Cutajar et al., 2010; Hammersley et al., 2008; Kilcommons & Morrison, 2005; Shevlin et al., 2007a). However, one recent review suggested that there is insufficient evidence to conclude that CSA is particularly associated with psychosis (Bendall et al., 2008). Recent studies have reported mixed findings regarding the specificity of particular abuse types and psychosis experiences. Colins et al. (2008) found that trauma predicted psychosis experiences in a detained juvenile offender sample, with paranoia particularly associated with emotional abuse. In a recent study by Mason, Brett, Collinge, Curr and Rhodes (2009), hallucinations were related to childhood physical, and not sexual, abuse. Fisher et al. (2010) found that severe physical abuse perpetrated by a maternal figure was most associated with psychosis, particularly when this occurred when the child was under 12 years. Such research highlights the need to consider numerous aspects of CT in relation to psychosis.

## **2.11 Pathways from trauma to psychosis**

An important argument supporting causal links between CT and psychosis comes from the plausible psychological and biological mechanisms which have been proposed, and there is a growing movement towards investigating these (Krabbendam, 2008). There is no single model regarding the relationship between trauma and psychosis (Hammersley et al., 2008), and this likely involves complex and reciprocal interactions between numerous psychological, social and biological factors (Read, Rudegeair & Farelly, 2006). There is insufficient space to comprehensively discuss all such factors

here. However, areas that have been considered include the role of PTSD (Mueser, Rosenberg, Goodman, and Trumbetta, 2002), stress sensitivity (e.g. Lardinois, Lataster, Mengelers, van Os & Myin-Germeys, 2011), attachment (Berry, Barrowclough & Wearden, 2007), cognitive biases (Klewchuk, McCusker, Mulholland & Shannon, 2007), perception of control and emotional responses (Bak et al., 2005). For further discussion of potential moderating/mediating variables, see Read et al. (2006).

One major theory in this area is the traumagenic neurodevelopmental model (Read, Perry, Moskowitz & Connolly, 2001), which suggests that CT may underpin psychosis vulnerability via its effects on the malleable developing brain. Cognitive theories have also been developed: Morrison (2001) and Morrison et al. (2003) present a model whereby PTSD and psychosis are conceptualised as similar post-trauma responses. Morrison et al. (2003) argue that the central differences between PTSD and psychosis lie in the cultural acceptability of interpretations of intrusive experiences, and positive beliefs about psychotic experiences. Morrison (2001) and Morrison et al. (2003) suggest trauma contributes to psychosis development via faulty self and social knowledge. For example, an abused individual may develop beliefs regarding personal vulnerability and malign intentions of others, thereby increasing the likelihood of ambiguous events being interpreted in a paranoid way. Empirical studies have found support for the association between trauma and psychosis being mediated by negative beliefs about self and others, specifically in terms of predisposition to paranoia (Gracie et al., 2007). However, at the heart of Morrison et al's model is the conceptualisation of psychosis symptoms as intrusions into awareness, with a key aetiological role highlighted for experiences (e.g. CT) which influence faulty *self* and *social* knowledge. Given that 'self' is implicated implicitly in such cognitive models, this raises important questions regarding the meaning of 'self' as applied to psychosis experiences, specifically the possible value of exploring aspects beyond knowledge components.

One under-researched idea that has been suggested as a mediator in the trauma and psychosis literature is that of dissociation (e.g. Read et al., 2001; Hammersley et al., 2008; Morrison et al., 2003). Consequently, the current thesis will focus upon this concept in relation to childhood trauma and psychosis.

## **2.12 Dissociation**

One common manifestation of traumatic stress is dissociation, which is characteristic of a variety of complex psychological difficulties (Carlson & Putnam, 1993), including PTSD, acute stress disorder (Cardeña & Gleaves, 2007), and the ‘dissociative disorders’ such as DID (APA, 2000). Dissociative phenomena have also been identified in schizophrenia, affective disorders, obsessive-compulsive, and somatoform disorders (Brown, Schrag & Trimble, 2005; Spitzer et al., 1998).

### **2.12.1 Dissociation and trauma**

Despite some evidence of a more complex relationship (Merkelbach & Muris, 2001), there is widespread acceptance of a traumagenic causal model of dissociation (Putnam, 1995; Van der Kolk, McFarlane, & Weisaeth, 1996), particularly for structural and pathological dissociation (Irwin, 1999; Van der Hart et al., 2004). For example, Startup (1999) found effect sizes of  $d = .52$ , and  $d = .45$  between DES scores and childhood sexual and physical abuse, respectively, and a meta-analysis (van Izjendoorn & Shuengel, 1996) found a significant effect size of  $d = .52$  for sexual and physical abuse in 26 studies. Evidence of a trauma-dissociation link has also been observed in psychosis samples (e.g. Goff, Brotman, Kindlon, Waites & Amico, 1991; Perona-Garcelon, 2010; Vogel et al., 2009). Although research has mostly focussed upon the link between CPA, CSA and dissociation, there is evidence that other forms of maltreatment are relevant. For example, Holowka, King, Saheb, Pukall and Brunet (2003) administered the

Childhood Trauma Questionnaire (CTQ) and DES to 26 patients with schizophrenia, finding that emotional abuse most strongly associated with dissociation. Schäfer et al. (2008) investigated 103 patients with schizophrenia spectrum disorders. Utilising the CTQ and DES, they found that sexual abuse, physical abuse, emotional abuse and total CTQ scores were significantly correlated with the DES and its constituent subscales, most notably amnesia. Furthermore, there is evidence that CT, as opposed to adult trauma, may be more related to dissociation in people with psychosis (Perona-Garcelán et al., 2010).

The rationale for how trauma causes dissociation comes from a conceptualisation of dissociation being an adaptive defensive manoeuvre to avoid overwhelming pain associated with an event (Kennedy et al., 2004). Once established, a dissociative response may become automatic and habitual, triggered by only minor stress (Giesbrecht & Merkelbach, 2008).

### **2.12.2 The relationship between dissociation and psychosis**

The relationship between dissociation and psychosis is complex (Ross, 2004). Although they are potentially distinct constructs, as described in the DSM-IV-TR (APA, 2000), they could describe similar issues. For example, Moskowitz and Corstens (2008) contend that auditory hallucinations represent dissociative, as opposed to psychotic phenomena, and it is difficult to distinguish between auditory hallucinations occurring in the context of DID or psychosis (Moskowitz & Corstens, 2008). Indeed, the structural disintegration model of dissociation shares many similarities with early conceptualisations of schizophrenia. Bleuler proposed that the core deficit in schizophrenia was the 'splitting' of psychological functions, and the concepts of psychosis and dissociation in psychiatry have historically been fused (Middleton, Dorahy & Moskowitz, 2008). As discussed, Morrison et al. (2003) suggest that psychosis and

PTSD (which incorporate dissociative elements) are distinguishable only by the cultural acceptability of the interpretations of intrusions. Ross (2000) proposes a trauma-dissociative subgroup of schizophrenia, characterised by severe symptoms, co-morbidity and trauma (Ross & Keyes, 2004).

Alternatively, psychosis and dissociation may reflect overlapping constructs with common and unique features (Schäfer, Ross & Read, 2008). Indeed, there are clear overlaps between the experiences reported by people diagnosed with schizophrenia and DID (Ross & Keyes, 2004): As many as half of all people diagnosed with schizophrenia and schizoaffective disorder show co-morbid dissociative symptoms (e.g. Haugen and Castillo, 1999). Although some of this overlap may be accounted for by item similarity of dissociation and psychosis measures, studies which have excluded overlapping items retain significant correlations between dissociation and schizotypy scales (Startup, 1999). Despite conflicting research (e.g. Irwin, 2001), the link between schizotypy/psychosis and dissociation might exist due to shared traumatic aetiology, cognitive deficits and fantasy proneness (Giesbrecht & Merckelbach, 2008; Startup, 1999). Interestingly, research suggests that the link between psychosis and dissociation might specifically be for 'positive' symptoms such as hallucinations (Moskowitz & Corstens, 2008; Perona-Garcelán, 2010; Schäfer et al., 2008) exactly those which have been related to CT.

### **2.12.3 The mediating effects of dissociation**

Emerging evidence suggests that dissociation may mediate the relationship between trauma and subsequent psychopathology (e.g. Becker-Lausen, Sanders, & Chinsky, 1995; Griffin, Resick, & Mechanic, 1997). Accordingly, the relevance of dissociation in understanding links between CT and psychosis has been proposed (e.g. Hammersley et al., 2008; Morrison et al., 2003; Moskowitz, Schafer & Dorahy, 2008; Read et al., 2001).

In discussing the traumagenic neurodevelopmental model, Read et al. (2001) suggest that the pathway to adult hallucinations, delusions and dissociative symptoms may begin with a dissociative response to CT. As dissociation causes impaired reality testing, Kilcommons and Morrison (2005) propose that individuals who respond to trauma with dissociation are more likely to subsequently experience psychosis, particularly hallucinations. Indeed, Allen, Coyne and Console (1997) suggest that dissociative detachment robs people of their internal anchors, such as feeling connected to their bodies and actions, and their sense of self and identity, thus leading to impaired reality testing, confusion, disorganisation and disorientation.

Such theoretical accounts are supported by growing evidence for the mediating effect of dissociation in the relationship between trauma and psychosis. In a non-clinical sample, Morrison and Peterson (2003) found that experiencing bereavement, physical assault and emotional abuse was associated with auditory hallucinations, and bullying related to visual hallucinations. Furthermore, dissociation was associated with predisposition to auditory and visual hallucinations. Kilcommons and Morrison (2005) examined trauma exposure and PTSD in 32 people with psychosis, finding that physical abuse was related to positive psychotic symptoms and sexual abuse was specifically associated with hallucinations; furthermore, dissociative depersonalisation predicted hallucinations. Investigating survivors of sexual assault and people with no such experience, Kilcommons, Morrison, Knight and Lobban (2008) found that dissociation was strongly related to psychosis, with dissociation and negative self-beliefs predicting delusional distress; additionally, dissociation was associated with predisposition to visual hallucinations. Varese, Barkus and Bentall (2010) investigated 1388 students, finding that hallucination proneness was related to poorer reality discrimination and issues of dissociation and attention.



A novel approach to examining dissociation and psychosis has come from Varese, Udachina, Myin-Germeys, Oorschot and Bentall (2011) who utilised Experience Sampling Method (ESM) to examine relationships between state dissociation and verbal hallucinations. Over six days, 42 people with psychosis and 23 healthy controls were regularly prompted by an electronic wristwatch to complete short questionnaires measuring auditory hallucinations, dissociation, paranoia, stress and experiential avoidance. More dissociation was reported by hallucinating patients, relative to non-hallucinators and controls. Furthermore, dissociation predicted auditory hallucinations, particularly in the context of increased stress. In the only available study to date to empirically examine the question of dissociation as a mediator in the link between CT and psychosis, Varese, Barkus and Bentall (in press) found that the relationship between various forms of CT and hallucination proneness was positively mediated by dissociation, especially regarding sexual abuse.

The reviewed evidence points to a specific link between dissociation and hallucinations, in that dissociation appears to underlie their development. However, further research into other aspects of positive psychosis experience is necessary to elucidate other associations and psychological mechanisms. As Allen et al. (1997) conceptualise dissociation as involving a loss of a sense of self, psychological literature in this area may help to understand the potential effects of CT and its relation to psychosis.

### **2.13 'Self' in psychosis**

The concept of self in psychosis has a long history, with attempts by early psychiatrists to understand diagnoses such as schizophrenia as essentially 'disorders of self' (Berrios & Marková, 2003). Although such theories have received limited empirical

investigation, research and theory have begun to apply empirical methods to re-examine the notion of self as it applies to psychosis (Kircher & David, 2003; Kinderman & Bentall, 1996; Preston, 2008). Furthermore, there exists a rich array of theories and measures within social psychology regarding the self (e.g. Baumeister, 1999), although these have received limited attention in psychosis research.

Stopa (2009a, 2009b) proposes a tripartite conceptualisation of the theories of the self available within the psychological literature: Content, structure and process. Whereas content refers to self-knowledge and information (e.g. beliefs), structure describes how such information is organised, and process pertains to how people attend to and regulate the self. Theorists (Campbell et al., 2003; Rafaeli-Mor & Steinberg, 2002; Stopa, 2009a, 2009b) have argued that little attention has been given to process and structural aspects of the self, with most theory and research focussing upon cognitive content. Considering self purely in terms of content, whilst intuitive and important, is potentially limiting. According to Stein and Markus (1994) focusing on the organisation of the self “...will result in a more comprehensive understanding of the role of the self-concept in psychopathology and behavioural change.” (p. 319).

The notion of self-structure is implicit within many descriptions and theories of psychosis: For example, Kircher and David (2003) suggest that schizophrenia is a ‘disentanglement of the normal unity of body, thoughts and emotions’ (p. 3). However, cognitive models of psychosis (e.g. Morrison, 2001) have generally paid insufficient attention to the complexity of self, including the structural organisation of the self-concept. An attempt will be made here to consider models of psychosis in the context of self-concept structure. As psychotic experiences are likely to be multifactorial (Garety & Freeman, 1999), the current thesis aims to highlight the potential importance of self-concept structure in relation to psychosis, as opposed to offering a comprehensive

account of such experiences. Given the degree of theoretical complexity, a further refinement will be offered: The concept of 'integration' within the self-concept structure will be used as an organising principle. In the context of cognitive structure discussed here, integration relates to the degree of unity within a cognitive domain (Zajonc, 1960. Cited in Constantino, Wilson, Horowitz & Pinel, 2006). It will be argued that lack of such integration is a core feature of psychosis, underpinning vulnerability from which psychosis experiences may follow. Further, it will be suggested that traumatic events may disrupt the development of an integrated self-concept, leading to increased vulnerability to psychosis.

### **2.13.1 Structural aspects of the self-concept**

The relationship between self-concept structure and psychological well-being and adjustment has been researched from several perspectives (e.g. Bigler, Neimeyer & Brown, 2001; Campbell et al., 1996; Campbell et al., 2003; Constantino et al., 2006; Donahue et al., 1993; Higgins, 1987; Koch & Shepperd, 2004). Such perspectives can be divided into those that consider pluralism/complexity, and those which focus upon unity/integration (Campbell et al., 2003).

### **2.13.2 Self-concept pluralism/complexity**

In synthesising self-structure research, Rafaeli-Mor and Steinberg (2002) identify Linville's (1985) model of self-complexity (SC) as influential. Within this model SC is defined as a *'function of two things: the number of aspects that one uses to cognitively organize knowledge about the self, and the degree of relatedness of these aspects'* (Linville, 1985, p. 97). This is measured by a sort task, whereby participants order lists of trait words across different roles in their lives. A dimensionality statistic (*'H'*) is then

computed based upon these lists, yielding a measure of complexity. Complex individuals are therefore those who use more aspects to describe themselves, and who have limited overlap amongst them. According to Linville (1985), increased SC is positive in that it provides a buffer against stressful life events, thereby reducing vulnerability to mental health difficulties. Linville (1985) suggests that a stressful life event will only affect the aspect most relevant to that stressor; therefore the greater the number of aspects, the lower the overall impact upon a person's total self-concept. Furthermore, greater distinction amongst self-aspects means less likelihood of negative feelings and inferences associated with the event 'spilling-over' into other aspects.

Despite some initial support for Linville's hypothesis (e.g. Linville, 1985) problems remain. SC may not be a stable trait, as implied by the theory, and the *H* statistic inadequately captures the 'overlap' dimension of SC (Brown & Rafaeli-Mor, 2000). The outcomes of a meta-analysis in the area found significant heterogeneity among the outcome of studies, although overall SC was weakly and negatively related to well-being. Furthermore, Rafaeli-Mor and Steinberg (2002) reported little support for SC being a stress buffer.

With respect to psychosis, Nieznanski (2003) found that people diagnosed with schizophrenia see themselves as less distinct from other people, and as changing more over time. Gara, Rosenberg, and Mueller (1989) compared patients with schizophrenia against controls and found that the clinical group showed less elaboration of self structures, although such a result may be influenced by 'negative symptoms' of psychosis (e.g. poverty of speech). Additionally, Gara et al. (1989) and Nieznanski (2003) did not employ the procedure described by Linville (1985), limiting the interpretation of results in relation to SC. More recently, however, Swarbrick, Bentall and Wittkowski (2006) compared SC in 15 clinical individuals experiencing paranoid delusions with non-clinical controls. They found that paranoid individuals had reduced SC, suggesting simpler self-

concepts and fewer self-aspects. In another recent study by Bell and Wittkowski (2009) SC was investigated in people experiencing auditory hallucinations compared to non-clinical controls. No evidence was found for the stress-buffering hypothesis presented by Linville (1985) and overall SC did not differ across the two groups. However, when SC was split by valence (i.e. organised by positive and negative traits) Swarbrick et al. (2006) found differential effects for positive SC and negative SC. Similarly, Bell and Wittkowski (2009) found that clinical participants displayed lower positive SC compared to controls.

It appears that SC does not consistently confer resilience to stress in clinical and non-clinical groups, with Rafaeli-Mor and Steniberg's (2002) review of 70 studies finding that 28 reported a positive relationship between SC and well-being, while the remaining 42 showed a negative correlation. Furthermore, SC's relationship to psychosis is unclear, with available studies suggesting that people with psychosis have either simpler or similar self-concept structure, as compared to non-clinical controls. Although this may be related to the different psychosis experiences investigated, such inconsistencies also suggest that applying other measures of self-concept structure will be helpful to understand its relationship to psychosis.

### **2.13.3 Self-concept integration**

Contrary to the hypothesis of Linville (1985), an alternative perspective has been that a 'divided self' (i.e. a self-concept which lacks integration) is an important precursor to the development of psychological problems (Lutz & Ross, 2003), and that a more unified self-concept is associated with greater psychological well-being (Block, 1961; Rogers, 1959). For example, Donahue et al. (1993) investigated *self-concept differentiation* (SCD) (reporting varying personality characteristics in different social roles) and its relationship to psychological adjustment. Ninety-six male and female

students completed a measure of SCD (self-ratings of attributes across social roles), and this was found to be significantly correlated with distress (-.39 for self-esteem, .44 for depression and .30 with neuroticism). Additionally, SCD was significantly negatively correlated with the personality traits of conscientiousness and agreeableness (-.45 and -.27, respectively). Further support for this hypothesis came from Lutz and Ross (2006) who found that SCD was positively related to depression, loneliness, and dissociation, and negatively related to self-esteem. Although Rafaeli-Mor and Steinberg (2002) found little support for Donahue et al's (1993) model, their review was based on studies primarily utilising Linville's SC method. Lutz and Ross (2006) provide evidence that such measures of self-complexity are theoretically and empirically unrelated to measures of integration such as SCD, a finding supported by Campbell et al. (2003). It therefore appears that less integration/unity in one's self-concept structure is associated with poorer emotional well-being.

Campbell et al. (2003) identifies three lines of research which examine integration/unity in the self-concept and its relationship to psychological adjustment: Donahue et al's (1993) self-concept differentiation; Higgins' (1987) self-discrepancy theory; and Campbell's (1990; 2003) self-concept clarity. Due to its potential links with psychosis, the current thesis will focus upon the latter, although Higgins' (1987) theory will be briefly considered in the context of cognitive models of persecutory delusions.

#### **2.13.4 Self-concept clarity (SCC)**

Campbell et al. (1996) define self-concept clarity as "the extent to which the contents of the self-concept are clearly and confidently defined, internally consistent, and temporally stable" (p.141). The Self-Concept Clarity Scale (SCCS) has been developed to assess this trait, and it measures the degree of unity, or integration, within the self-concept structure (Campbell et al., 1996; 2003; Constantino et al., 2006). There are

fewer measurement issues with the SCCS as compared to other measures of self-concept structure (Constantino et al., 2006), and it is stable over time (Wu, Watkins & Hattie, 2010). This measure may be particularly useful in relation to psychosis research given that it does not rely on measurements of different social roles, which may be relatively limited in people with psychosis.

Consistent with Donahue et al.'s (1993) hypothesis, research suggests that structural aspects of the self-concept are important across a variety of domains. For example, Smith, Wethington and Zhan (1996) found that students with higher SCC demonstrated lower depression, anxiety, perceived stress, higher self-esteem and utilised more active coping styles. Individuals with higher SCC engage in fewer social comparisons (Butzer & Kuiper, 2006), show better problem solving in social conflicts (Bechtoldt, De Dreu, Nijstad & Zapf, 2010), are less socially anxious and depressed, and have higher self-esteem (Stopa, Brown, Luke & Hirsch, 2010). Ritchie, Sedikides, Wildschut, Arndt and Gidron (2010) found that self-concept clarity mediated the relationship between life stress and subjective well-being, and in a study investigating reactions after failure, Stucke and Sporer (2002) found that individuals with low SCC and high narcissism reacted more angrily and aggressively to failure feedback than less narcissistic individuals with high SCC.

### **2.13.5 SCC and psychosis**

Only two studies have specifically examined SCC in psychosis. This is perhaps surprising, as disintegration of the self-concept might be particularly relevant to psychosis (Bigler et al., 2001). Bigler et al. (2001) recruited 31 inpatients with schizophrenia, finding that SCC significantly predicted scores on measures of general contentment ( $r = .72$ ), depression ( $r = -.59$ ) and anxiety ( $r = -.79$ ). However, Bigler et al. (2001) did not report SCC and its possible relationship to psychosis *per se*.

Preston (2008) investigated self-concept integration and its relationship to psychosis-like experiences in the general population. Drawing together ideas from self-discrepancy theory (Higgins, 1987) and the dialogical model of self, which considers self as a society of 'I-positions' (Hermans, 2008), Preston suggested that lower self-concept integration would be related to psychosis-like experiences. For example, regarding auditory-verbal hallucinations (and similar to Kilcommons & Morrison's (2005) consideration of dissociation underpinning vulnerability to psychosis), Preston hypothesised that individuals would be more prone to misattribute inner speech as externally located (proposed by Bentall (1990) to be the key to understanding auditory hallucinations) if the dialogical exchanges between self-positions were less integrated. Using the SCCS as a proxy measure of integration, Preston found evidence that lower integration was related to greater psychosis-like experiences. SCC accounted for significant variance in psychosis-like experiences such as delusional beliefs, hallucination proneness, impulsive non-conformity and unusual experiences; these relationships were partially mediated via depression and anxiety. However, Preston's (2008) use of a non-clinical, and predominantly female sample, limits the generalisability of these findings.

#### **2.14 Integration as a feature of dissociation and self-concept structure**

The 'divided self' perspective of self-concept structure proposed by Block (1961), Donahue et al. (1993) and Campbell et al. (2003) has significant conceptual overlap with the current definition of dissociation, which suggests that a healthy psyche is *integrated* and unified and can shift easily between different contexts, involving a continuity of memory and identity. Given that psychological integration is a key aspect of this concept, it might be expected that dissociation would be associated with less self-concept integration. To date, only two studies have investigated self-concept integration and its relationship to dissociation. Lutz and Ross (2003) examined several 'adjustment'



variables such as depression, loneliness and dissociation, and self-concept differentiation (a measure of integration). They found that loneliness, dissociation and low self-esteem were the most important predictors of self-concept differentiation. Pollack, Broadbent, Clarke, Dorrian and Ryle (2001) found significant negative correlations of  $-.53$  between a measure of dissociation (DES) and self-concept integration (SCCS) in the general population. Consequently, there exists a preliminary theoretical and empirical basis for suggesting that levels of dissociation would be inversely associated with self-concept integration, potentially tapping similar underlying aspects of self-concept structure. However, no research has directly examined this relationship in a psychosis sample.

## **2.15 Integration and its relationship to positive psychosis experiences**

### **2.15.1 Dissociation and hallucinations**

Source-monitoring is the capacity to accurately identify the origin of stimuli (Johnson, Hashtroudi & Lindsay, 1993). This has been usefully applied to study auditory-verbal hallucinations (AVH), since these occur when internal speech is attributed as externally located (Bentall, 2003). Several studies have found a link between dissociation and hallucinations (Morrison & Kilcommons, 2005; Kilcommons et al., 2008; Varese et al. (in press). Bentall, Fernyhough, Morrison, Lewis and Corcoran (2007) speculate that trauma and hallucinations could be linked via dissociation: As dissociation involves impaired integration of information processing, source-monitoring may be adversely affected as a consequence. It follows that individuals reporting more dissociative experiences would have impaired reality-monitoring difficulties, thereby contributing to an increased risk of AVH. However, the limited literature in this area has not supported this link. Merkelbach, Muris, Horselenberg and Stougie (2000) presented 42 female students with a series of slides showing either photographs of common objects

or words describing objects. In a subsequent recognition task participants reported whether they had seen, or simply read about, each item. Merkelbach et al. (2000) found that DES scores were not related to mistakes in the recognition task, suggesting that reality-monitoring may be independent of dissociation. Varese et al. (in press) utilised a signal detection task to measure associations between reality discrimination and dissociation in 41 people with psychosis, finding that dissociation did not affect reality discrimination. However, the small sample sizes used in these studies, the young female sample reported by Merkelbach et al. (2000) and differences across the studies in terms of reality monitoring tasks limits the generalisability of these results.

### **2.15.2 Self-concept integration and information processing**

Hemsley (1998) suggests that a person's sense of self results from moment-by-moment integration of sensory input and stored material; when such information-processing is disrupted, as in psychosis, it leads to a loss of sense of self. However, rather than simply being a consequence of information-processing, self-concept also actively shapes such processing and indeed some schizophrenia symptoms have been described as being due to a deficit in self-monitoring (Frith, 1992). Markus and Wurf (1987) identify the propensity of individuals to be more sensitive to self-relevant material, and that self-congruent information is processed, recalled and recognised more efficiently. Indeed, more confident behavioural predictions, attributions, and inferences are made in self-relevant domains, and individuals are more likely to reject information that is inconsistent with their self-structure (Markus & Wurf, 1987). It is logical to suggest, therefore, that a lack of integration within the self-structure would provide an incoherent and inconsistent basis from which to preferentially attend to, process, recall, and recognise self-relevant stimuli. Furthermore, this lack of a consistent internal template upon which attributions, inferences and predictions regarding the behaviour of oneself and others are based could interfere with decisions about which aspects of one's

experiences were salient, leading to informational overload, confusion, and possible attempts to ascribe meaning to anomalous experiences (e.g. Maher, 1974). This idea is consistent with research demonstrating that individuals with psychosis show difficulties in cognitive inhibition, in that they are less able to ‘filter out’ irrelevant and distracting stimuli (e.g. Dorahey, Middleton & Irwin, 2004). This conceptualisation of self-concept potentially influencing salience overlaps with the work of Kapur (2003), which suggests that the excess dopamine that has been proposed to underlie psychosis may “[interrupt the]... normal process of contextually driven salience attribution and lead to *aberrant assignment of salience to external objects and internal representations*” (Kapur, 2003, p.15. Italics in original). In the model proposed here, less integration in one’s self-concept may lead to an over-reliance upon external stimuli; furthermore, the lack of a template to guide attention, processing, recall and recognition may underpin the anomalous interpretation of experiences, objects and other phenomena as being salient, potentially manifesting as delusions and hallucinations.

### **2.15.3 Integration and persecutory delusions**

As discussed by Campbell et al. (2003), one line of research investigating integration in self-concept structure comes from Higgins’ (1987) self-discrepancy theory, which attempts to establish how multiple self-representations interact. Higgins suggests three domains of the self: *Actual self* (personal representation of attributes that the individual or another believes is possessed); *ideal self* (the representation of attributes that the individual or another would like to have); and *ought self* (representation of the attributes that the individual or another believes they should possess). Furthermore, domains are considered important depending on whether they are viewed from the standpoint of self or other. Combining each of these standpoints with each of the domains of self yields six possible self-state representations: Actual/own (A-O), actual/other (A-OT), ideal/own (I-O), ideal/other (I-OT), ought/own (O-O), and

ought/other (O-OT). According to Higgins (1987), such representations guide and motivate behaviour, with individuals attempting to reduce discrepancies amongst them; furthermore, specific discrepancies are associated with particular affective states. For example, if someone believes that their own attributes do not match the ideal state they wish to achieve (i.e. A-O versus I-O), they are likely to feel disappointed and dissatisfied. However, if a person believes that their own attributes do not match the state that they believe a significant other considers to be their duty (i.e. A-O versus O-OT), they are likely to feel agitated and experience fear and threat.

Bentall and colleagues (e.g. Bentall, Kinderman & Kaney, 1994; Kinderman & Bentall, 1996) investigated the hypothesis that persecutory delusions are formed to maintain self-esteem. This theory suggests that people with persecutory delusions externalise negative events to prevent activation of underlying negative self-representations. Two strands of evidence have been used to examine this hypothesis: Studies on attributional bias and those investigating self-discrepancies (see Garety & Freeman, 1999). Studies regarding self-discrepancies in persecutory delusions have evoked Higgins' (1987) theory as a framework to investigate the 'delusion as defence' hypothesis. Positing that paranoid individuals externally attribute negative events to reduce actual and ideal self-discrepancies, Kinderman and Bentall (1996) compared the self-discrepancies of people with depression, paranoia, and non-clinical controls. They found that people with persecutory delusions and non-clinical controls showed few discrepancies between their perception of their actual selves and their ideal and ought selves, as compared to people with depression.

Such research is supportive of the defensive theory of persecutory delusions; however, this model has been criticised, notably on the basis of patterns of low self-esteem within samples of people with persecutory delusions, a result which is apparently inconsistent with the delusion as defence hypothesis (Garety & Freeman, 1999).

However, the self-esteem literature is equivocal, and this may relate to issues regarding methodology, unitary assumptions regarding self-esteem, differences amongst persecutory delusions, as well as a failure to consider the dynamic nature of self (Bentall, Corcoran, Howard, Blackwood & Kinderman, 2001). In a more recent incarnation of the model, termed the Attribution-Self-Representation cycle, Bentall et al. (2001) suggest that self-representations in people with persecutory delusions may be unstable over time, influencing and influenced by attributions. Such a dynamic view of self appears consistent with the arguments regarding psychosis and self-structure made within this thesis.

## **2.16 Adverse experiences, self-concept structure and psychosis**

According to Erikson (1959), developing a self-concept is fundamental to identity formation. The self is a social product (Owens, 2003; Mead, 1934), and there are strong links between autobiographical memory and self (Conway & Pleydell-Pearce, 2000). Accordingly, Preston (2008) suggests that traumatic experiences may affect an individual's integration of self-concept, and there exists some research providing preliminary support for this. Lutz and Ross (2003) found that a fragmented and disintegrated self-concept (as measured by SCD (Donahue et al, 1993) was associated with retrospective reports of negative aspects of the childhood environment, such as overprotection and lack of care. Furthermore, associations between parental bonding and self-concept integration remained even after controlling for adjustment variables such as loneliness and dissociation. Wu (2009) found that anxious attachment styles were related to less SCC, although this relationship was mediated by self-esteem.

It has been suggested that a damaged self-concept may confer risk of psychosis (Bell & Wittkowski, 2009). Indeed, phenomenological approaches have implicated a

disturbed basic sense of self in psychosis vulnerability (Nelson et al., 2009; Parnas, 2000), and the lack of self-concept integration experienced in psychosis may be related to the specific neuroanatomical structures/circuits associated with self-awareness and reported as dysfunctional in psychosis samples (Hecht, 2010). Preliminary evidence that traumatic life events could relate to psychosis in terms of their impact upon structural aspects of a person's self-concept comes from a study conducted by Sporle (2007), who found that individuals diagnosed with psychosis who had experienced CT displayed less 'self-elaboration', saw themselves as more different from other people and had more conflict within their self-concept, as compared to people without trauma.

Conceptualising this process from a neuropsychanalytic perspective, Read et al. (2006) suggest that social efficiency develops as a result of integrated ego states facilitating coordinated social memories, awareness of social context and the selection of appropriate social responses. This theory maintains that the integration of ego-states is a developmentally vulnerable process which may be jeopardised by trauma and attachment difficulties, with lower integration resulting in errors contextualising and interpreting social meaning. Consequently, and consistent with dissociation research discussed previously, it might be expected that adverse childhood experiences would impair self-concept integration, thereby conferring vulnerability to psychosis. However, no research is currently available which has systematically examined this hypothesis.

## **2.17 Conclusion**

Psychosis can be considered a 'disorder of self'. Childhood trauma is associated with and may cause psychosis, and this may also impact upon the experience of dissociation and development of self-concept. Self-concept involves structural and organisational aspects, in addition to knowledge components; however, the latter have been the primary focus of much cognitive theory and research in psychosis. Self-concept

structure research, in the form of theory and methods from social psychology and the dissociation literature, may elucidate links between childhood trauma and psychosis. However, further research is necessary to clarify outstanding questions.

## **2.18 Study aims**

This study aimed to replicate previous findings of increased childhood trauma in a psychosis group relative to those with no such experiences. Furthermore, the study looked to investigate self-concept clarity and dissociation across an early episode psychosis and non-clinical sample, and potential links with childhood trauma. Given theoretical similarities, the research aimed to examine the relationship between self-concept clarity and dissociation. Lastly, a key objective was to investigate the possible role of dissociation and self-concept clarity in mediating the relationship between childhood trauma and psychosis.

## **2.19 Hypotheses**

**Hypothesis one:** *‘Participants in a first-episode psychosis group will have experienced significantly more childhood trauma than those in a non-clinical group’.*

**Hypothesis two:** *‘Scores on a measure of dissociation will be significantly higher in a first-episode psychosis group as compared to a non-clinical group’.*

**Hypothesis three:** *‘Scores on a measure of self-concept clarity will be significantly lower in a first-episode psychosis group as compared to a non-clinical group’.*

**Hypothesis four:** *‘Childhood trauma will be positively correlated with dissociative experiences’.*

**Hypothesis five:** *'Childhood trauma will be negatively correlated with self-concept clarity'.*

**Hypothesis six:** *'Dissociative experiences will be negatively correlated with self-concept clarity'.*

**Hypothesis seven:** *'Self-concept clarity and dissociation will mediate the relationship between childhood trauma and psychosis'.*



## 3.0 Method

### 3.1 Design

A cross-sectional between-subjects design comparing two groups was employed, with the experience of psychosis as the grouping variable. Data were collected at one time point on the main variables of childhood trauma, dissociation and self-concept clarity.

### 3.2 Sample size

*A priori* calculation established the number of participants necessary to achieve sufficient statistical power (0.80; Cohen, 1988). Due to the heterogeneous concepts under consideration, and the lack of research regarding links between variables (e.g. childhood trauma and self-concept clarity), statistical calculations were based on theoretical estimates and transformed effect sizes (see Appendix B for a full overview). Consequently, medium effect sizes were assumed across the variables. Power analysis was completed using the GPower (Faul & Erdfelder, 1992) and Power Analysis and Sample Size computer programs (NCSS, 2008). This indicated that 102 participants at a ratio of 1:1 for clinical and non-clinical groups provided sufficient power.

### 3.3 Sample

#### 3.3.1 Clinical participants

The clinical sample was drawn from the population served by five Early Intervention in Psychosis (EIP) teams in North-West England. Such teams offer multi-disciplinary treatment for people aged 14-38 experiencing either first-episode psychosis<sup>1</sup>,

<sup>1</sup> The 'First-episode' group were within the first three years of their first treated episode. Consequently, they may have experienced more than one episode and/or were not experiencing an episode whilst participating in the study.

or deemed 'at risk' of developing psychosis. This population was chosen due to the limited research examining childhood trauma in this group, as well as the potential confounds of chronic mental health difficulties, diagnosis and treatment on self-concept and trauma reactions. Research also suggests that community based investigations of trauma yield more accurate estimates than those of inpatients (Spataro et al, 2004). Only those individuals within the 'first-episode psychosis' population served by these teams were recruited.

### **3.3.2 Non-clinical participants**

To maximise recruitment of non-clinical participants, and increase the likelihood of obtaining suitable matching of clinical and non-clinical groups (see Section 3.3.3), a large pool of potential participants was required. Consequently, Adult Learning Centres (ALC) were approached. Classes attracting men and women aged 16-38 and from a variety of socio-economic, educational and ethnic backgrounds were targeted. This was carried out during a six-month period in 2010/11. It was felt that individuals attending education classes would have the necessary language and literacy skills to participate in the research.

### **3.3.3 Matching criteria**

As research suggests socio-economic status, gender, age, ethnicity and family history of psychosis as being factors related to the development of psychosis (e.g. Kendler et al., 1996), an attempt was made to match the clinical and non-clinical groups on these variables. Matching was approximate, based upon average demographic characteristics of EIP clients. Matching criteria were evaluated by testing for statistically significant differences between groups on each demographic variable (see Section 4.4.1).

### **3.4 Inclusion/exclusion criteria**

#### **3.4.1 Clinical participants**

Individuals were eligible to participate if they were being seen by the EIP following first-episode psychosis, as opposed to being deemed 'at risk' of such experiences. Although EIP teams work with people from the age of 14, those younger than 16 were excluded from the study due to issues of informed consent (National Research Ethics Service, 2007). In line with EIP exclusion criteria, psychosis did not have an organic basis (e.g. head-injury). Furthermore, participants were required to speak fluent English, be able to give informed consent to participate in the study and to have met service inclusion criteria for positive symptoms of psychosis, as assessed by the positive and negative syndrome scale (PANSS; Kay, Fiszbein & Opler, 1987). This involved scoring above four on the items probing delusions, conceptual disorganisation and hallucinatory behaviour for over a week at intake. Although most weight was placed on these areas, people could potentially meet PANSS cut-off by scoring on the excitement, grandiosity, suspiciousness/persecution and hostility items (see Appendix C). The completion of the PANSS was confirmed for all participants via reference to clinical notes and discussions with care co-ordinators. Data regarding psychosis diagnoses and experiences were not collected. Informed consent was established via discussion with care co-ordinators, and when the researcher met with referred individuals (see Appendix D).

#### **3.4.2 Non-clinical participants**

Individuals were eligible to take part if they were aged 16-38, spoke fluent English and reported no previous contact with mental health services, psychiatric diagnoses or treatment and screened negative on the Psychosis Screening Questionnaire

(see Section 3.10.4). Participants were also required to provide informed consent to take part in the study (see Appendix D).

### **3.5 Procedure**

#### **3.5.1 Clinical group**

Care co-ordinators and other clinicians within the Early Intervention Teams were approached within team meetings and individually, where an overview of the research was provided. Furthermore, an information sheet for professionals was disseminated (see Appendix E). Following this, clinicians were asked to approach potential participants to discuss the research, distribute information sheets and obtain verbal consent for the researcher to contact them if they wished to take part. Clinicians gave their opinion as to whether individuals' mental health was sufficiently stable to provide informed consent.

Consequently, initial invitations to participate were made by EIP team members. Clients were then contacted by the researcher, and appointments made to discuss the project in a suitable environment (typically in the participant's home). The participant leaflet outlining the study was discussed (see Appendix F); if the individual was interested and the researcher determined that they understood what participation involved, the informed-consent document was provided and discussed. Individuals were given time to consider whether they wished to participate in the study. With client consent, clinical notes were examined and discussed with clinicians involved in the client's care, to ensure no exclusion criteria for participation in the study were met. Participants then completed the Childhood Trauma Questionnaire, Self-Concept Clarity Scale and Dissociative Experiences Scale II. Demographic data were also gathered to ascertain matching criteria (see Section 4.4.1). Overall participation ranged between 30 and 90 minutes.

### **3.5.2 Non-clinical group**

The researcher attended adult education classes to canvass interest in the research. This involved a brief presentation; during this, a participant information leaflet outlining the study was provided, including the researcher's contact details (see Appendix G). Individuals were asked to consider participation and to call to arrange an appointment if interested. For those who provided immediate agreement to participate, an informed consent form was discussed and completed and a convenient appointment arranged for data collection. Exclusion criteria paralleled those of the clinical group (e.g. aged 38 or under). Additionally, non-clinical participants were excluded if they reported involvement with mental health services, past or current diagnosis/treatment of a mental health difficulty or if they met cut-off on the Psychosis Screening Questionnaire. Demographic data were gathered to ascertain matching criteria and to ensure exclusion criteria were not met.

### **3.6 Confidentiality**

The initial meeting with participants was used to confirm informed consent and reiterate limitations of confidentiality. For both groups, questionnaires were administered in a face-to-face session, so as to ensure informed consent, adequate understanding of the study process and to provide an ongoing assessment of participant distress (see Section 3.7).

### **3.7 Management of distress**

Due to the possibility of distress following participants reporting past traumatic events, a procedure outlined in other research examining trauma and the self-concept in psychosis was adopted to manage this (Sporle, 2007).

Clinical participants were asked to provide consent for the researcher to contact a member of their care team if they became distressed. Participants were informed that if they became distressed, data collection could be suspended and the researcher would offer suitable support. If this eased the participant's distress and they felt able to continue, data collection resumed. Alternatively, if significant distress remained, the session was terminated and the participant's care co-ordinator or another clinician involved in the individual's care was contacted immediately. In any event, participant distress was responded to by informing the EIP team, albeit discussed with the participant in the first instance.

The process for managing distress in non-clinical participants was similar to the clinical procedure. However, as participants in this section of the study did not have mental health service input, significant distress was responded to by the researcher providing support, signposting appropriate agencies and suggesting the participant seek further emotional support independently. Significant distress from participants which did not respond to the above procedures, and which suggested risk to selves or others, was to be responded to by the researcher calling the police or ambulance service.

Participants in both groups were given contact details for mental health charities, support services for victims of abuse and the Samaritans following their participation (see Appendix H).

### **3.8 Remuneration**

Participants were reimbursed for travel costs incurred in research participation, up to the value of three pounds. Additionally, participants who completed all measures

were provided with the opportunity to be entered into a lucky draw to win store vouchers to the value of £100 (first prize) and two second prizes of £50.

### **3.9 Ethical permission**

The study was approved by the University of Liverpool Doctorate in Clinical Psychology Research Committee. Ethical approval was obtained from the local National Health Service ethics committees (see Appendix I), and permission granted by the research and development committees of two North-West NHS trusts (see Appendix J).

### **3.10 Measures**

#### **3.10.1 Demographic information**

Participants provided their names, age, gender and address (if they wished to be included in the prize draw). Personal and family history of mental health difficulties, ethnicity, educational attainment, marital and employment status were also assessed (see Appendix K). The simplified version of the National Statistics Socio-Economic Classification (NS-SEC; Office for National Statistics [ONS], 2005) was used to determine household socio-economic status. The NS-SEC is an occupationally based system, coded according to the occupation of the person financially responsible for the accommodation in which a respondent lives. In line with the NS-SEC guidelines (ONS, 2005) occupation was coded into three possible classes – managerial and professional occupations; intermediate occupations; and routine and manual occupations (including never worked and long-term unemployed). See Appendix L for further information.

**3.10.2 The childhood trauma questionnaire (CTQ; Bernstein & Fink, 1998) is a 28-item self-report questionnaire which screens for childhood abuse and neglect in**

adolescents and adults. The CTQ takes five to 10 minutes to complete and items assess five types of potentially traumatic childhood experiences. These comprise emotional abuse (e.g. *“I felt that someone in my family hated me”*), emotional neglect (e.g. *“I felt loved”*), physical abuse (e.g. *“People in my family hit me so hard that it left me with bruises or marks”*), physical neglect (e.g. *“I didn’t have enough to eat”*) and sexual abuse (e.g. *“Someone threatened to hurt me or tell lies about me unless I did something sexual with them”*). Respondents indicate the frequency of each described experience using a five-point scale ranging from ‘never true’ to ‘very often true’. Items are scored so that higher scores reflect more self-reported childhood trauma. Additionally, three items assess minimisation or denial of negative childhood experiences (e.g. *“I had the perfect childhood”*). These yield a minimisation/denial (CTQM/D) score which ranges from zero to three, with higher scores putatively reflecting increased minimisation of negative aspects of childhood (Bernstein & Fink, 1998). See Appendix M for sample CTQ form.

The CTQ has been found to have adequate psychometric properties: Test-retest reliability coefficients of .79 to .86 have been reported, with internal consistency coefficients of between .66 and .92 (Bernstein & Fink, 1998). Within the current study, adequate internal reliability at the subscale and overall questionnaire level was found ( $\alpha$  ranged between .73 and .92). The CTQ demonstrates similar disclosure rates to interview-based protocols, and factor analysis reveals a five factor structure consistent with the CTQ’s subscales (Bernstein & Fink, 1998; Scher, Stein, Asmundson, McCreary, & Forde, 2001). Although not discussed within the CTQ manual, total CTQ scores can also be calculated in addition to individual subscale scores, with these having clinical and research utility (Schäfer et al., 2006; Scher et al., 2001; Vogel et al., 2009). Based upon a series of cut-points provided in the CTQ manual, numerical scores on subscales were converted to qualitative descriptions regarding level of abuse (*“None/Minimal”*, *“Low/Moderate”*, *“Moderate/Severe”*, *“Severe/Extreme”*).



The CTQ has been used in previous psychosis research (e.g. Lardinois et al., 2011; Savitz, van der Merwe, Stein, Solms & Ramesar, 2009; Schäfer et al., 2006; Üçok & Bikmaz, 2007), and has been recommended as an appropriate measure for examining CT in psychosis (Bendall et al., 2008). General support for the validity of self-report measures of trauma comes from studies showing good agreement with external information such as child protection services and police records (Winegar & Lipschitz, 1999). Furthermore, research supports the reliability of reports of traumatic history in patients with 'severe mental illness' (Read et al., 2005).

**3.10.3 The self-concept clarity scale (SCCS; Campbell et al., 1996)** is a 12-item scale measuring the extent to which the contents of an individual's self-concept are clearly and confidently defined, internally consistent and temporally stable (Campbell et al., 1996). Example items include: "*My beliefs about myself often conflict with one another*" and "*In general I have a clear sense of who I am and what I am*". Respondents endorse the extent to which they agree with each statement on a five-point scale ("*Strongly Agree*" to "*Strongly Disagree*"). The scale is coded so that higher scores represent increased self-concept clarity.

Consistent with previous research examining self-concept and psychosis-like experience (Preston, 2008), the SCCS is to be used in the present study as a proxy measure of integration within the self-concept. Campbell et al. (1996) described the SCCS as having good internal consistency ( $\alpha = .86$ ) and test-retest reliability ( $r = .79$ ). Within the current study, the SCCS showed adequate internal reliability ( $\alpha = .86$ ). Furthermore Campbell et al. (1996) utilised factor analysis and found strong evidence for a single general factor on the SCCS. This measure takes approximately five to 10 minutes to complete.

As discussed in Section 2.14, a variety of methods have been proposed to measure aspects of self-concept, including task-based methodologies (e.g. Linville, 1985; Donahue et al, 1993). However, such methodologies have been criticised from several perspectives (e.g. Brown & Rafaeli-Mor, 2000). The SCCS is proposed as a legitimate way of assessing self-concept structure within a psychosis sample as, unlike task-based methodologies, it is independent of the number of social roles that a person has in their lives (which may be limited for psychosis clients). Furthermore, the brief questionnaire format is most likely to be useful within a clinical context. See Appendix N for an example of the SCCS.

#### **3.10.4 The psychosis screening questionnaire (PSQ; Bebbington & Nayani, 1995)**

was administered to non-clinical participants to establish the absence of psychosis symptoms over the past year. The PSQ consists of five probe questions, plus secondary questions, enquiring about mania (i.e. *“have there been times when you felt very happy indeed without a break for days on end?”*) thought insertion (i.e. *“have you ever felt that your thoughts were directly interfered with or controlled by some outside force or person?”*), paranoia (i.e. *“have there been times when you felt that people were against you?”*), strange experiences (i.e. *“have there been times when you felt that something strange was going on?”*) and hallucinations (i.e. *“have there been times when you heard or saw things that other people couldn't?”*). Positive responses to probe questions prompt secondary questions (e.g. for ‘hallucinations’: *“did you at any time hear voices saying quite a few words or sentences when there was no one around that might account for it?”*). Positive responses on secondary questions indicate that the person has screened positive. Research has suggested a sensitivity of 96.9%, a specificity of 95.3%, a positive predictive value of 91.2%, and a negative predictive value of 98.4% for the PSQ in identifying clinically significant psychosis (Bebbington & Nayani, 1995). In the present study, participants’ ratings on the PSQ were independently verified by a rater external to the research.

The PSQ had been used extensively within psychosis research (e.g. Deb, Lyons, Koutzoukis, Ali & McCarthy, 1999; Johns et al., 2004). See Appendix O for an example of the PSQ.

**3.10.5 The dissociative experiences scale- 2<sup>nd</sup> version (DES-II; Carlson & Putnam, 1993)** is a 28-item scale assessing dissociative experiences in daily life.

Example items are “*Some people find that they sometimes are able to ignore pain*” and “*Some people have the experience of finding themselves in a place and having no idea how they got there*”. Individuals circle a number between zero and 100 to indicate what percentage of the time each experience happens to them, specifically when not under the influence of alcohol or drugs.

The DES has been established as a valid and reliable measure (Bernstein & Putnam, 1986). It has demonstrated good internal consistency and good construct validity (Frischholz, et al., 1990, 1992; Ross, Joshi, & Currie, 1991). van Ijzendoorn and Schuengel (1996) examined 16 studies which utilised the DES and found a mean alpha reliability score of .93, and excellent test-retest reliability. Within the current study, adequate internal reliability was found ( $\alpha = .95$ ). In a comprehensive meta-analysis, the DES demonstrated excellent convergent validity with both questionnaire and interview-based measures of dissociation (van Ijzendoorn & Schuengel, 1996). Some authors suggest the DES contains three underlying factors of absorption, amnesia and depersonalisation (Bernstein & Putnam, 1986); however, there is limited evidence for this, with most studies supporting a one-factor solution (see van Ijzendoorn & Schuengel, 1996). Consequently the current study utilised only overall scores on the DES. The DES-II, which differs from the original only in terms of a slightly different scoring procedure, has demonstrated excellent convergent validity with the original form (Ellason, Ross, Mayran & Sainton, 1991). The DES is the most widely used measure of dissociation, and has been used to measure dissociation in non-clinical and clinical

samples, including previous research involving people with psychosis (e.g. Varese et al., in press; Kilcommons & Morrison, 2005; Schäfer et al., 2006).

Mean DES-II scores across the 28 items were used for data analysis. However, several clinical participants identified question 27 as relating to their psychosis experiences (“*Some people sometimes find that they hear voices inside their head that tell them to do things or comment on things that they are doing*”). Due to the potentially confounding nature of this item, and consistent with previous research methodologies (e.g. Startup, 1999) this item was discounted and amended DES-II means were also included in data analysis (see Sections 4.6.4 and 4.6.6). See Appendix P for an example of the DES-II.

**3.10.6 Positive and negative syndrome scale (PANSS; Kay et al, 1987).** Although the PANSS was not administered by the researcher for the current study, scoring above cut off on this measure was an inclusion criterion for the clinical participants. Typically, participants had completed the PANSS with a member of the EIP at the point of intake into the team. The completion of this was confirmed via reference to client case notes and discussions with care co-ordinators.

The PANSS is a 30-item measure containing four scales measuring positive and negative psychosis experiences (e.g. positive items: Hallucinations, delusions; negative items: blunted affect, emotional withdrawal). Within the EIP, the PANSS was incorporated into the routine admission assessment process. For this purpose, only ‘positive’ psychosis experiences were assessed. The PANSS is administered via a semi-structured interview and is used routinely within clinical and research settings (e.g. Schäfer et al., 2006). It demonstrates good sensitivity, inter-rater reliability, and criterion and construct validity (e.g. Kay et al., 1987).

### **3.11 Data analysis**

All statistical tests utilised an alpha level of .05. Analyses included Spearman's correlation, Mann-Whitney U tests and chi-square tests. These analyses are discussed in detail in Section 4.0 – 4.6.7.3. A significant aspect of the current study involved mediational analysis (see Section 4.6.7). In its simplest form, a mediation relationship is defined where a third (intervening) variable explains the association between a predictor and an outcome variable. There are numerous methods available to examine statistical mediation (e.g. Baron & Kenny, 1986; Imai, Keele & Tingley, 2010; Preacher & Hayes, 2008). Of these, the causal steps approach described by Baron and Kenney (1986) is the most widely known. However, this has been criticised due to low power, inflated Type I error rates, and its reliance upon inferred mediational effects as opposed to direct statistical observation (see Hayes, 2009). Consequently, and due to issues regarding parametricity, the current study utilised a bootstrapping approach to mediation (see Section 4.6.7).

### **3.12 Statistical software**

Statistical analyses were completed using the Statistical Package for Social Sciences (SPSS; v. 18). Mediational analysis was conducted using the SPSS macro accompanying Preacher and Hayes (2008).

## **4.0 Results**

### **4.1 Missing data**

Complete data were collected from all participants.

### **4.2 Data screening**

Following data entry, data were screened for errors, normality, homogeneity of variance, and the presence of outliers. No variable met the assumption of normality across clinical and non-clinical groups; only CTQ emotional and physical neglect and self-concept clarity scores did not have unequal variance between both groups (see Appendix Q for further details). Consequently, logarithmic and square-root transformations were attempted; however, heterogeneous skewness and kurtosis across variables meant no single transformation procedure was corrective for the entire data set. Non-parametric analyses were therefore employed for the initial analyses, and bootstrapping was utilised within the mediational analyses.

### **4.3 Characteristics of the sample**

#### **4.3.1 Non-clinical**

Due to the recruitment method (i.e. approaching classes of adult learners), no record was kept of the percentage of people approached who subsequently agreed to meet with the researcher. However, a total of 46 non-clinical participants agreed to take part in the study. Of these, six did not attend scheduled appointments or could not be contacted. From those who met with the researcher, a further five were excluded due to reporting past or current involvement with mental health services, and/or diagnoses of mental

health difficulties (e.g. depression, anxiety, and psychosis). Of those remaining, four scored above cut-off on the PSQ, and were therefore excluded from the study and informed of the reasons for this. Therefore, 31 non-clinical participants subsequently completed all measures. Participants in the non-clinical sample were aged 18 to 36 ( $M = 23.74$ , Median ( $Mdn$ ) = 22.00; Inter-quartile range ( $IQR$ ) = 7.00). A summary of the remaining demographic information for this sample is presented in Table 1.

#### 4.3.2 Clinical

Due to the indirect recruitment method (i.e. via care co-ordinators), no data were available regarding number of potential participants approached. However, 35 clinical participants agreed to meet the researcher to discuss possible participation in the study. Of these, one subsequently refused to speak with the researcher, one could not complete all questionnaires due to becoming distressed, one did not wish to take part, two were unable to arrange appointments prior to the end of data collection, and one was excluded due to being in the 'at risk' of psychosis stream. This left a total clinical sample of 29 (uptake = 82.86%) who subsequently completed all measures. Clinical participants were aged 18 to 38 ( $M = 27.69$ ,  $Mdn = 28.00$ ,  $IQR = 9.50$ ). At the time of completing the study questionnaires, all clinical participants were receiving community care. A summary of the remaining demographic information for this sample is presented in Table 1.

**Table 1: Summary of demographic information by clinical (N = 29) and non-clinical (N = 31) groups**

Demographic Value	N		%	
	Clinical	Non-Clinical	Clinical	Non-Clinical
<b>Gender</b>				
Female	10	12	34.5	38.7
Male	19	19	65.5	61.3
<b>SES</b>				
Routine and manual	15	16	51.7	51.6
Intermediate	4	7	13.8	22.6
Managerial and professional	10	8	34.5	25.8
<b>Family history of psychosis</b>				
	5	4	17.2	12.9
<b>Highest Education attainment</b>				
No qualifications	4	1	13.8	3.2
'O' Levels/GCSE	0	2	0.0	6.5
'A' Levels	4	4	13.8	12.9
HNC/HND/NVQ	12	16	41.4	51.6
University Degree	9	8	31.0	25.8
<b>Marital Status</b>				
Married	2	3	6.9	9.7
Living with Partner	1	5	3.4	16.1
Single	25	23	86.2	74.2
Other	1	0	3.4	0.0
<b>Employment status</b>				
Employed	8	22	27.6	71.0
Other	21	9	72.4	29.0
<b>Ethnicity</b>				
White British	25	29	86.2	93.5
Other	4	2	13.8	6.5

*Note: Complete data obtained for all participants*



## 4.4 Preliminary analyses

### 4.4.1 Between-group differences

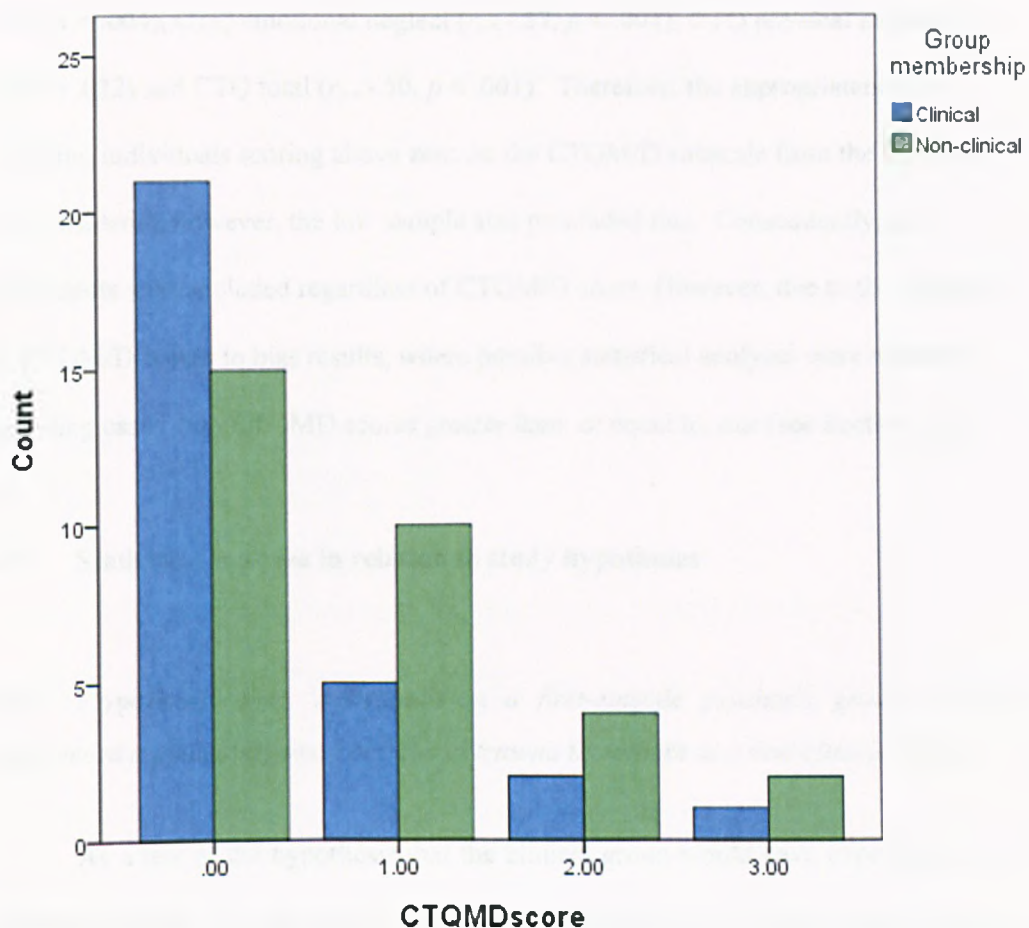
Demographic differences between the clinical and non-clinical groups were examined. Due to the categorical and ordinal nature of these variables, as well as violations of the assumption of normality, non-parametric tests were utilised. Mann-Whitney U tests found that clinical participants ( $Mdn = 28.00$ ;  $IQR = 9.50$ ) were significantly older than non-clinical participants ( $Mdn = 22.00$ ;  $IQR = 7.00$ ),  $U = 268.50$ ,  $z = -2.69$ ,  $p = .007$ . Levels of educational attainment did not differ significantly across clinical ( $Mdn = 4.00$ ;  $IQR = 2.00$ ) and non-clinical participants ( $Mdn = 4.00$ ;  $IQR = 1.00$ ),  $U = 445.00$ ,  $z = -.07$ ,  $p = .939$ . Furthermore, socio-economic status did not significantly differ across the clinical ( $Mdn = 1.00$ ;  $IQR = 2.00$ ) and non-clinical ( $Mdn = 1.00$ ;  $IQR = 2.00$ ) groups,  $U = 431.00$ ,  $z = -.30$ ,  $p = .772$ .

Chi-square tests suggested no significant association between group membership and gender ( $\chi^2 (1, N = 60) = 0.12$ ,  $p = .734$ ), family history of psychosis ( $\chi^2 (1, N = 60) = 0.22$ ,  $p = .638$ ) or marital status ( $\chi^2 (1, N = 60) = 1.35$ ,  $p = .337$ ). However, more people in the non-clinical group were employed compared to the non-clinical group ( $\chi^2 (1, N = 60) = 11.28$ ,  $p = .002$ ). A Fisher's exact test ( $p = .417$ ) revealed that the proportion of people identifying their ethnicity as other than 'White British' did not differ significantly from chance across clinical (13.8%) and non-clinical groups (6.5%).

In summary, clinical and non-clinical samples were similar in gender, family history of psychosis, ethnicity, socio-economic status, educational attainment and marital status. However, they differed in employment status and age. Given these differences, including age and employment status as covariates in the univariate and bivariate analysis was considered. However, no non-parametric statistic was available to support this.

#### 4.4.2 Childhood trauma minimisation and denial subscale (CTQM/D)

Scores on the CTQM/D subscale range from zero to three, with Bernstein and Fink (1998) suggesting that any score from one to three suggests the possibility of false negative reports of childhood maltreatment. A summary of the frequency of scores on the CTQM/D subscale across clinical and non-clinical groups can be seen in Figure 1.



**Figure 1:** Bar chart showing frequencies of CTQM/D scores across clinical and non-clinical groups.

As seen in Figure 1, there was an apparent trend for non-clinical participants to score higher on the CTQM/D subscale, relative to the clinical group. However, when investigated using a two-tailed Mann-Whitney U test, CTQM/D scores for the non-

clinical participants ( $Mdn = 1.00$ ;  $IQR = 1.00$ ) did not differ significantly from those of the clinical participants ( $Mdn = 0.00$ ;  $IQR = 1.00$ ),  $U = 354.00$ ,  $z = -1.60$ ,  $p = .113$ .

A general trend for increasing scores on the CTQM/D subscale to be associated with lower median scores across most CTQ abuse subscales was observed (see Appendix R). This was investigated via Spearman's correlation coefficients, which found that CTQM/D score was significantly negatively related to scores on CTQ emotional abuse ( $r_s = -.37$ ,  $p = .004$ ), CTQ emotional neglect ( $r_s = -.57$ ,  $p < .001$ ), CTQ physical neglect ( $r_s = -.28$ ,  $p = .032$ ) and CTQ total ( $r_s = -.50$ ,  $p < .001$ ). Therefore, the appropriateness of excluding individuals scoring above zero on the CTQM/D subscale from the analyses was considered; however, the low sample size precluded this. Consequently, all respondents were included regardless of CTQM/D score. However, due to the potential for CTQM/D scores to bias results, where possible statistical analyses were repeated excluding cases with CTQMD scores greater than, or equal to, one (see Section 4.6).

#### **4.5 Statistical analyses in relation to study hypotheses**

##### **4.5.1 Hypothesis one: *'Individuals in a first-episode psychosis group will have experienced significantly more childhood trauma than those in a non-clinical group'***

As a test of the hypothesis that the clinical group would have experienced more childhood trauma than the non-clinical group, a series of one-tailed Mann-Whitney U tests were conducted. Descriptive statistics and significance results for these tests are shown in Table 2.

**Table 2:***Descriptive statistics and significance values for childhood trauma between groups*

	<i>Mdn</i>		<i>IQR</i>		<i>p</i>
	Clinical	Non-clinical	Clinical	Non-clinical	
CTQ Subscale	<i>N</i> = 29	<i>N</i> = 31	<i>N</i> = 29	<i>N</i> = 31	
Emotional Abuse	9.00	6.00	6.50	4.00	$p < .01^a$
Physical Abuse	6.00	5.00	3.00	0.00	$p < .01^b$
Sexual Abuse	5.00	5.00	0.00	0.00	$p < .05^c$
Emotional Neglect	11.00	7.00	6.50	3.00	$p < .01^d$
Physical Neglect	6.00	5.00	3.00	0.00	$p < .05^e$
CTQ Total	38.00	28.00	16.50	9.00	$p < .01^f$

<sup>a</sup>  $U = 264.00, z = -2.78, p = .002, r = -.36$

<sup>b</sup>  $U = 268.50, z = -3.11, p = .001, r = -.40$

<sup>c</sup>  $U = 372.00, z = -2.06, p = .031, r = -.27$

<sup>d</sup>  $U = 267.50, z = -2.71, p = .003, r = -.35$

<sup>e</sup>  $U = 329.00, z = -2.07, p = .020, r = -.27$

<sup>f</sup>  $U = 236.50, z = -3.16, p = .001, r = -.41$

CTQ scores across subscales, and in total, were significantly higher in the clinical group as compared to the non-clinical group. However, applying a Bonferroni correction for the number of comparisons suggested a revised significance criterion of .008. Using this, only CTQ emotional abuse, physical abuse, emotional neglect, and total trauma remained significantly higher in the clinical group. Additionally, all tests were repeated including only those participants who scored zero on the CTQM/D scale. In these analyses, the pattern of higher scores across all CTQ subscales within the clinical group remained, although sexual abuse ( $U = 127.50, z = -1.54, p = .174, r = -.26$ ) and physical neglect ( $U = 120.50, z = -1.07, p = .145, r = -.18$ ) no longer reached statistical significance.

To further explore the relationship between childhood trauma and group membership, the number of participants reporting traumatic experiences was investigated. Based upon CTQ manual guidelines, participants' scores on the five individual subscales of the CTQ were classified as either 'None/Minimal', 'Low/Moderate', 'Moderate/Severe' or 'Severe/Extreme' (see Table 3).

To examine differential rates of trauma across groups, classifications of traumatic experiences were collapsed into a dichotomous variable ('maltreatment' versus 'no-maltreatment'). Participants were classified as having no maltreatment if their scores fell into the 'none/minimal' range for each subscale as identified in the CTQ manual. 'Maltreatment' classification was based upon scoring in any of the remaining three CTQ maltreatment ranges (i.e. low/moderate, moderate/severe, severe/extreme). Percentage and number of respondents identifying maltreatment experiences across each CTQ subscale is presented in Table 4. Overall, 75.9% ( $N = 22$ ) of the clinical group, compared to 45.2% ( $N = 14$ ) of the non-clinical group reported any maltreatment experience as measured by the CTQ subscales. Using a one-tailed chi-square test, this difference reached statistical significance ( $\chi^2 (1, N = 60) = 5.88, p = .015, OR = 3.82$ ).

**Table 3: Percentage of participants reporting type and severity of childhood trauma across clinical and non-clinical groups.**

CTQ Scale	Classification of maltreatment							
	None/Minimal		Low/Moderate		Moderate/Severe		Severe/Extreme	
	Clinical	Non-clinical	Clinical	Non-clinical	Clinical	Non-clinical	Clinical	Non-clinical
Emotional Abuse	48.3%	67.7%	24.1%	32.3%	10.3%	0%	17.2%	0%
Physical Abuse	72.4%	93.5%	17.2%	6.5%	0%	0%	10.3%	0%
Sexual Abuse	79.3%	96.8%	13.8%	0%	3.4%	3.2%	3.4%	0%
Emotional Neglect	37.9%	77.4%	41.4%	16.1%	10.3%	0%	10.3%	6.5%
Physical Neglect	72.4%	83.9%	17.2%	3.2%	0%	6.5%	10.3%	6.5%

The observed percentage of maltreatment histories reported by clinical participants compared to non-clinical participants was investigated using one-tailed chi-square and Fisher's exact tests. Results are summarised in Table 4. There was no significant association between group membership and emotional abuse history ( $\chi^2 (1, N = 60) = 2.34, p = .103, OR = 2.25$ ) or reports of physical neglect ( $\chi^2 (1, N = 60) = 1.16, p = .223, OR = 1.98$ ). However, the proportion of participants reporting physical abuse ( $p = .031$ ) and sexual abuse ( $p = .042$ ) differed significantly from chance across clinical and non-clinical groups. Based on the odds ratio, the odds of reporting physical or sexual abuse were, respectively, 5.52 and 7.83 times higher in the clinical group than in the non-clinical group. There was also a significant association between group membership and emotional neglect ( $\chi^2 (1, N = 60) = 9.61, p = .002$ ). The odds of reporting emotional neglect was 5.61 times higher in the clinical than in the non-clinical group. These results indicate that proportionately more individuals in the clinical group reported physical abuse, sexual abuse and emotional neglect. However, applying a Bonferroni correction for the number of comparisons suggested a revised significance criterion of .01. Using this, only emotional neglect remained significantly more prevalent in the clinical group.

When these analyses were repeated excluding individuals scoring above zero on the CTQ M/D scale, only emotional neglect remained statistically significant ( $\chi^2 (1) = 9.80, p = .003, OR = 11.33$ ).

**Table 4:***Differences in reports of any childhood trauma across clinical and non-clinical groups*

CTQ Subscale	Group				<i>p</i>
	Clinical ( <i>N</i> = 29)		Non-clinical ( <i>N</i> = 31)		
	%	<i>N</i>	%	<i>N</i>	
Emotional Abuse	51.7	15	32.3	10	<i>p</i> > .05*
Physical Abuse	27.6	8	6.5	2	<i>p</i> < .05†
Sexual Abuse	20.7	6	3.2	1	<i>p</i> < .05†
Emotional Neglect	62.1	18	22.6	7	<i>p</i> < .01*
Physical Neglect	27.6	8	16.1	5	<i>p</i> > .05*

\* One-tailed Chi-square tests

† One-tailed Fisher's exact tests

#### 4.5.2 Hypothesis two: 'Scores on a measure of dissociation will be significantly higher in a first-episode psychosis group as compared to a non-clinical group'

To test the hypothesis that the clinical group would show higher dissociation than the non-clinical group, a one-tailed Mann-Whitney U test was conducted. DES-II scores were significantly higher in the clinical group (*Mdn* = 18.93; *IQR* = 19.64) compared to the non-clinical group (*Mdn* = 7.86; *IQR* = 10.00), *U* = 199.00, *z* = -3.71, *p* < .001, *r* = -.40. This significant result remained when excluding the DES-II item identified as showing the closest similarity to psychosis experiences (*U* = 204.00, *z* = -3.63, *p* < .001, *r* = -.47; see Section 3.10.5).

**4.5.3 Hypothesis three:** *'Scores on a measure of self-concept clarity will be significantly lower in a first-episode psychosis group as compared to a non-clinical group'*.

As a test of the hypothesis that the clinical group would score lower than the non-clinical group on the SCCS, a one-tailed Mann-Whitney U test was conducted. SCCS scores were significantly lower in the clinical group ( $Mdn = 34.00$ ;  $IQR = 14.00$ ) compared to the non-clinical group ( $Mdn = 48.00$ ;  $IQR = 8.00$ ),  $U = 150.50$ ,  $z = -4.43$ ,  $p < .001$ ,  $r = -.57$ .

**4.5.4 Hypothesis four:** *'Childhood trauma will be positively correlated with dissociative experiences'*

The hypothesis that higher levels of childhood trauma would be associated with more dissociative experiences was investigated using one-tailed Spearman's correlation coefficients.

As can be seen in Table 5, all CTQ subscales and CTQ total score were significantly positively correlated with DES-II scores across the aggregate sample. This suggested that those individuals who reported more childhood trauma also reported greater dissociative experiences. The strongest coefficients were between DES-II and emotional abuse, physical neglect and CTQ total.  $R_s^2$  was calculated to approximate the variance in ranks shared by the CTQ subscales and DES-II scores. This suggested that ranked CTQ emotional abuse scores accounted for 20% of the variance in ranked DES scores. Physical abuse accounted for 11% and sexual abuse 9%. Emotional neglect, physical neglect and CTQ total accounted for 10%, 21% and 18%, respectively.



**Table 5:**

*Spearman's rho correlation coefficients among DES-II and CTQ scores across the total study sample (N = 60).*

	CTQ subscale					
	Emotional Abuse	Physical Abuse	Sexual Abuse	Emotional Neglect	Physical Neglect	CTQ Total
	DES-II	.448***	.333**	.292*	.321**	.455***

\*  $p < .05$     \*\*  $p < .01$     \*\*\*  $p < .001$

This hypothesis was investigated in more detail, focussing on the relationships between CTQ subscales and DES-II scores within the clinical group. This analysis was not conducted for the non-clinical group due to the limited range in CTQ scores. As can be seen in Table 6, significant positive correlations remained between all CTQ subscales and CTQ total, except in the case of sexual abuse which retained a positive non-significant trend in the correlation (one-tailed  $r_s = .216$ ,  $p = .13$ ). However, there was a restricted range of scores on the CTQ sexual abuse scale which may account for this result. The largest correlations remained between the DES-II and emotional abuse, physical neglect and CTQ total.  $R_s^2$  calculations suggested 27% of the variance in ranks for the DES scores was accounted for by ranked scores on the emotional abuse subscale. Emotional neglect, physical neglect and CTQ total accounted for 15%, 31% and 33% of the DES-II (ranked) variance, respectively.

**Table 6:**

*Spearman's rho correlation coefficients among DES-II and CTQ scores within the clinical sample (N =29).*

	CTQ subscale					CTQ Total
	Emotional Abuse	Physical Abuse	Sexual Abuse	Emotional Neglect	Physical Neglect	
DES-II	.519**	.345*	.216	.393*	.559**	.574**

\*  $p < .05$     \*\*  $p < .01$     \*\*\*  $p < .001$

When excluding those individuals scoring above zero on the CTQM/D scale, significant positive correlations remained between the DES-II and all CTQ subscales and total within the aggregate sample. For the clinical group, excluding individuals scoring above zero on the CTQM/D scale rendered all CTQ subscales and total score significantly positively correlated with DES-II scores, including for sexual abuse. Details of these analyses can be found in Appendix S.

Lastly, all the above analyses were repeated, substituting the DES-II score for that omitting item 27 (see Section 3.10.5 for discussion of the potential confound regarding this item). Omission of this item did not influence the direction or significance of any of the aforementioned results. Details of these analyses can be found in Appendix T.

#### **4.5.5 Hypothesis five: 'Childhood trauma will be negatively correlated with self-reported self-concept clarity'**

The hypothesis that higher CTQ scores would be associated with lower SCCS scores was investigated using one-tailed Spearman's correlation coefficients. As can be

seen in Table 7, all CTQ subscales and CTQ total score were significantly negatively correlated with SCCS scores across the entire study sample. This suggested that individuals reporting more childhood trauma tended to report lower self-concept clarity and *vice versa*. The strongest associations were between SCCS and emotional abuse, emotional neglect, physical neglect and CTQ total. However, there was a relatively restricted range of scores on sexual abuse and physical abuse subscales.  $R_s^2$  was calculated to approximate the variance shared by the CTQ ranked subscales and SCCS ranked scores. This suggested that the ranked scores for the CTQ emotional abuse subscale accounted for 24% of the variance in ranks of the SCCS scores. Physical abuse ranked scores accounted for 5% and sexual abuse 9%. Emotional neglect, physical neglect and CTQ total ranked scores accounted for 27%, 31% and 34%, respectively.

This hypothesis was investigated in more detail, focussing on the relationships between CTQ subscales and SCCS scores within the clinical group. This analysis was not conducted for the non-clinical group due to a restricted range in CTQ scores. As can be seen in Table 8, only physical neglect and CTQ total were significantly negatively associated with SCCS in the clinical group. However, even within the clinical group there was a somewhat restricted range of scores on the CTQ sexual abuse and physical abuse subscales which may account for the lack of association.  $R_s^2$  calculations suggested 10% of the ranked SCCS score ranked variance was accounted for by physical neglect and CTQ total score ranks.

**Table 7:**

*Spearman's rho correlation coefficients among SCCS and CTQ scores across the total study sample (N = 60).*

	CTQ subscale					
	Emotional Abuse	Physical Abuse	Sexual Abuse	Emotional Neglect	Physical Neglect	CTQ Total
	SCCS	-.493***	-.228*	-.305**	-.521***	-.560***

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

**Table 8:**

*Spearman's rho correlation coefficients among SCCS and CTQ scores within the clinical group (N = 29).*

	CTQ Subscale					
	Emotional Abuse	Physical Abuse	Sexual Abuse	Emotional Neglect	Physical Neglect	CTQ Total
	SCCS	-.245	-.079	-.046	-.237	-.324*

*Note: Correlation derived from one-tailed Spearman's rho*

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

When excluding individuals scoring above zero on the CTQM/D scale, all CTQ subscales and CTQ total retained negative significant correlations with SCCS scores across the aggregate sample. When excluding those scoring above zero on the CTQM/D in the clinical group, physical neglect and CTQ total remained significantly negatively

correlated; additionally, emotional abuse became significantly negatively correlated with SCCS scores. Details of these analyses can be found in Appendix U.

**4.5.6 Hypothesis six: *'Dissociative experiences will be negatively correlated with self-concept clarity'***

The hypothesis that self-concept clarity scores and DES-II scores would be negatively correlated was investigated using a one-tailed Spearman's correlation coefficient. Results indicated a significant negative relationship between these two measures ( $r_s = -.602$ ,  $p < .001$ ,  $R_s^2 = .36$ ) within the aggregate sample.

When broken down by group, clinical participants' SCCS and DES-II scores retained a significant negative relationship ( $r_s = -.699$ ,  $p < .001$ ,  $R_s^2 = .49$ ); in the non-clinical group, there appeared to be a trend towards a negative correlation, although this did not reach statistical significance ( $r_s = -.281$ ,  $p = .063$ ). This suggested that when including both groups in the analysis, the non-clinical sample artificially decreased the strength of the association between SCCS and DES-II. Examining scatterplots suggested this was due to a restricted range of scores on the SCCS and DES-II in the non-clinical group (see Appendix V).

Lastly, all of the above correlations were repeated, substituting the DES-II score for that omitting item 27 (see Section 3.10.4). This did not influence the direction or significance of any of the aforementioned results. Details of these analyses can be found in Appendix W.

#### **4.5.7 Hypothesis seven: *'Self-concept clarity and dissociation will mediate the relationship between childhood trauma and psychosis'***

Following initial analyses, there appeared to be a predominance of significant relationships between childhood trauma, self-concept clarity, dissociation and psychosis in the predicted directions. Consequently the hypothesis that self-concept clarity or dissociation would mediate the relationship between childhood trauma and psychosis was explored using a series of mediational models. These models included CTQ subscale scores as independent variables (IVs) and psychosis group membership as the dependent variable (DV). The analyses were conducted separately using SCCS scores and DES-II scores as mediating factors. Multiple mediation (i.e. entering several mediators into a model simultaneously) was not used due to possible multicollinearity between the DES-II and SCCS, and the small sample size and consequent issues regarding statistical power.

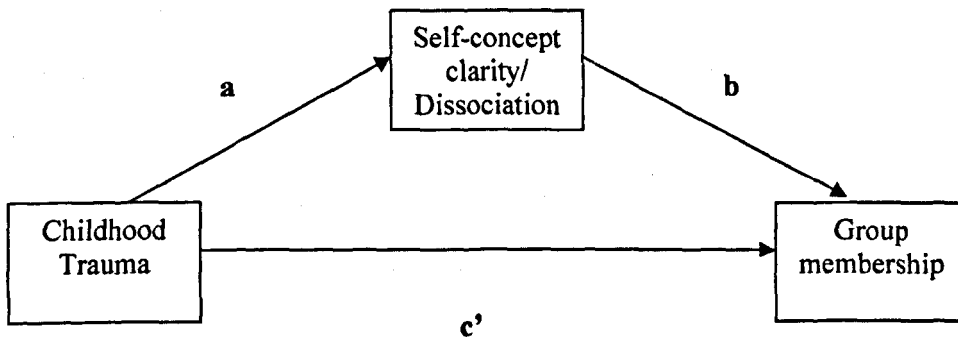
##### **4.5.7.1 Assessing assumptions**

Logistic regression formed an important aspect of these analyses, given the dichotomous dependent variable (psychosis group membership). Consequently, provisional analysis focussed upon establishing the degree to which the study data met the assumptions of logistic regression. These assumptions of linearity of the logit and absence of multicollinearity were met. See Appendix X for full details.

##### **4.5.7.2 Description of the analysis**

Through a series of regression equations, mediation was investigated by directly testing the significance of the indirect effect of the independent variables (CTQ subscales) on the dependent variable (psychosis group membership) through the mediators (DES-II/SCCS). This indirect effect was quantified as the product of the

effects of the IV on the mediator (a) and of the mediator on the DV (b), partialling out the direct effect of the IV (c'). See Figure 2.



**Figure 2:** *Mediation model showing direct and indirect effects of IV on DV*

Following Preacher and Hayes (2008), a bootstrapping approach to mediation was used. Bootstrapping is a non-parametric resampling procedure which does not assume normal distributions. This approach estimates indirect point effects and associated 95% confidence intervals (CI) derived from the mean of 5000 resamples. A bias corrected bootstrapping procedure was chosen as this is the most powerful approach to detecting statistical mediation (Fritz & MacKinnon, 2007). Indirect effects were deemed statistically significant when the bias corrected CI did not include zero (Preacher & Hayes, 2008).

Analyses investigated the role of dissociation and self-concept clarity in mediating the effect of specific subtypes of childhood trauma on psychosis. To reduce potential confounds, the DES-II scores used for this analysis discounted item 27 which most clearly overlapped with psychosis experiences (see Section 3.10.5). Following previous analysis (see Section 4.4.1), age and employment status were entered as covariates for all mediational analyses. Furthermore, due to the low sample size, all

participants were included in the analyses, regardless of CTQM/D score. Results are presented in Tables 9 and 10.

Emotional neglect was significantly associated with psychosis group membership (*c* weights). In line with previous analyses, all types of maltreatment as measured by the CTQ (including a conglomerate total score) showed significant associations with the DES-II and SCCS, respectively (*a* weights). Regarding the effects of the mediators on group membership, dissociation was significantly positively associated with group membership across all maltreatment experiences. Furthermore, self-concept clarity was significantly negatively related to group membership across all maltreatment experiences (*b* weights).

#### **4.5.7.3 Dissociation as mediator**

In terms of mediating effects, analysis found that dissociation positively mediated the relationship between physical neglect and psychosis group membership. Although there appeared no significant total effect of physical neglect on group membership, this is not required to infer significant mediational effects (Preacher & Hayes, 2008). Relatively large *ab* product coefficients (indirect effects) were also observed in the case of physical and sexual abuse; however, these did not achieve statistical significance, potentially as a result of the small sample size and the relative rarity of these experiences. These results suggest that the effects of childhood physical neglect in increasing the likelihood of being within the first-episode psychosis group were explicable through the mediating effects of increased dissociation.



#### **4.5.7.4 Self-concept clarity as mediator**

The analysis found that self-concept clarity mediated the relationship between psychosis group membership and total childhood trauma, emotional abuse, physical abuse, emotional neglect and physical neglect. Emotional neglect had the only significant total effect on psychosis group membership. Inspection of coefficients suggested that the effect of these maltreatment experiences on psychosis group membership was mediated by a reduction in SCCS scores. A comparatively large ab product coefficient (indirect effect) was observed in the case of sexual abuse increasing the likelihood of being within the psychosis group via its effect of reducing self-concept clarity; however, this did not reach statistical significance, potentially due to low statistical power and the relative rarity of this experience within the sample.

**Table 9:**

*Summary of simple mediator models for dissociation across specific types of childhood trauma for the aggregate sample (N = 60), 5000 bootstraps*

Independent Variable	Mediating Variable	Dependent Variable	Effect of IV on M	Effect of M on DV	Direct Effect	Indirect Effect	Total Effect	
IV	M	DV	a	b	c'	(a x b)	c	
						(95% CI)		
						LL	UL	
CTQ Total	DES-II (corrected)	Group	.013***	2.040*	.049	.027	(-.006 to .106)	.069
Emotional abuse	DES-II (corrected)	Group	.040***	2.093*	.113	.084	(-.016 to .288)	.186
Physical abuse	DES-II (corrected)	Group	.061**	2.092*	.325	.128	(-.047 to .476)	.451
Sexual abuse	DES-II (corrected)	Group	.067*	2.592**	-.228	.173	(-.036 to .549)	.019
Emotional neglect	DES-II (corrected)	Group	.023*	2.228*	.138	.051	(-.004 to .235)	.157*
Physical neglect	DES-II (corrected)	Group	.043*	2.347*	.026	.101*	(.002 to .365)	.104

Note: All values expressed in unstandardised regression coefficients. CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

**Table 10:**

*Summary of simple mediator models for self-concept clarity across specific types of childhood trauma for the aggregate sample (N = 60), 5000 bootstraps*

Independent Variable	Mediating Variable	Dependent Variable	Effect of IV on M	Effect of M on DV	Direct Effect	Indirect Effect	Total Effect
IV	M	DV	a	b	c'	(a x b) (95% CI) LL UL	c
CTQ Total	SCCS	Group	-.370***	-.154**	.010	.057* (.012 to .148)	.069
Emotional abuse	SCCS	Group	-.942**	-.153**	.043	.144* (.025 to .404)	.186
Physical abuse	SCCS	Group	-1.285*	-.152**	.410	.195* (.006 to .647)	.451
Sexual abuse	SCCS	Group	-1.722*	-.171**	-.356	.294 (-.306 to .634)	.019
Emotional neglect	SCCS	Group	-.858**	-.152**	.033	.130* (.029 to .379)	.157*
Physical neglect	SCCS	Group	-1.292**	-.163**	-.040	.210* (.035 to .573)	.104

Note: All values expressed in unstandardised regression coefficients. CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit

\* $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .00$

## 5.0 Discussion

### 5.1 Overview of study aims

This study aimed to replicate previous findings of higher self-reported childhood trauma in psychosis samples relative to those with no such experiences. Furthermore, the study intended to investigate self-concept clarity and dissociation across an early episode psychosis and non-clinical sample, and examine possible links with childhood trauma. Given their conceptual similarity, the study also aimed to investigate the relationship between dissociation and self-concept clarity. Lastly, a key objective was to examine the role of dissociation and self-concept clarity in mediating the relationship between childhood trauma and psychosis. The results of the research will be presented and discussed in relation to each of the study's hypotheses (Section 2.19).

**5.2 Hypothesis one:** *'Participants in a first-episode psychosis group will have experienced significantly more childhood trauma than those in a non-clinical group'*

This hypothesis was investigated by comparing scores on the CTQ and its constituent subscales across the first-episode psychosis and non-clinical samples, and also examining the proportion of each group reporting maltreatment experiences. The results of the first analyses showed that the clinical group reported significantly higher scores on the CTQ across all subscales. Differences were in terms of small to medium effects (Cohen, 1988); however, total trauma, physical abuse, emotional abuse and emotional neglect showed the largest effect sizes, and sexual abuse and physical neglect the smallest. Indeed, these latter two types of abuse no longer differed significantly across groups when excluding participants who scored above cut-off on the CTQM/D scale and correcting for the number of comparisons made. This suggested that the higher levels of sexual abuse and physical neglect could be accounted for either by the higher levels of minimisation and denial in the

non-clinical group or Type I error. However, excluding people scoring above cut-off on the CTQM/D scale led to a total sample size of 35, thereby reducing the power of the statistical tests to detect significance. Overall, the results of this analysis supported hypothesis one.

A significantly higher proportion of the clinical group reported abuse experiences of any kind as defined by the CTQ, compared to the non-clinical group. Reports of all abuse types were more common within the clinical group, although these differences did not reach statistical significance for emotional abuse or physical neglect. However, a significantly higher proportion of the clinical group reported physical abuse, sexual abuse, and emotional neglect. When analyses excluded participants who met the cut-off point on the CTQM/D scale, and a statistical correction was applied for the number of comparisons made, only rates of emotional neglect remained significantly higher in the clinical group. This suggests that the higher rates of physical and sexual abuse in the clinical group could be a result of inaccurate responding or Type I error. Overall, these results supported hypothesis one, albeit highlighting emotional neglect as the most robust finding.

These results are broadly consistent with previous literature identifying high levels of childhood trauma within psychosis groups. For example, the current overall figure of 75.9% of the clinical participants reporting trauma to at least the moderate/severe level, is close to that of Schäfer et al. (2006), who found that 73% of 30 female inpatients with 'schizophrenia spectrum disorders' reported any trauma as defined by the CTQ. Comparing the current study's results with those of other research examining a first-episode psychosis sample, rates of physical neglect, emotional neglect, physical abuse and emotional abuse were higher, and sexual abuse lower, than those found by Üçok and Bikmaz (2007). This relatively lower rate of sexual abuse may be related to the high proportion of males within the current study, as women with psychosis are more likely to experience and report sexual abuse than men (Greenfield, Strakowski, Tohen, Batson &

Kolbrener, 1994). The current study's rate of physical abuse is similar to that reported by Greenfield et al. (1994) in their first-episode psychosis group, although higher for sexual abuse; however Greenfield et al.'s method of assessing trauma differed from the current study's, rendering such comparisons difficult.

The average CTQ total score found within the psychosis group (42.2) is similar to that reported elsewhere (e.g. Schäfer et al., 2006; Vogel et al., 2009) and there are comparable findings in terms of rates of individual maltreatment experiences. Although the overall proportion of clinical participants reporting some form of childhood trauma was higher than the range discussed in a recent systematic review (Bendall et al., 2008), this is to be expected since in the present study neglect as well as abuse *per se* was included.

Regarding sexual and physical abuse, the current study shows similar outcomes to previous research which has adopted a matched-groups design. For example, although drawing from a differing sample, the results of the current study are generally consistent with the findings of Nettelbladt et al. (1996), who found that childhood sexual abuse was more commonly reported in a small sample ( $N = 17$ ) of people diagnosed with schizoaffective disorder and a history of inpatient admission, compared to a non-psychiatric control group (47% vs. 6%). Although in the current study the higher scores on the CTQ sexual abuse subscale were no longer significant when using more conservative comparisons, this may be due to lower statistical power and the fact that the Bonferroni statistical correction is associated with increased Type II error (Field, 2009).

Overall, the results of this study are in line with the majority of research in this area (Bendall et al., 2008; Bendall et al., 2010; Manning & Stickley, 2009; Read et al., 2005). Furthermore, the current study highlights the association between broadly defined trauma, particularly issues of neglect, and psychosis. Although causal claims cannot be deduced

from cross-sectional research, the current findings are not inconsistent with the hypothesis that childhood trauma may be a casual factor in the development of psychosis.

**5.3 Hypothesis two: *'Scores on a measure of dissociation will be significantly higher in a first-episode psychosis group as compared to a non-clinical group'***

The psychosis group reported significantly higher dissociation than the non-clinical group. These results were highly significant, with effect sizes within the medium to large range. Furthermore, these results were unaffected when an item of the DES-II which overlapped with psychosis experiences was excluded. These results provide strong support for hypothesis two.

This finding is consistent with previous research examining dissociation in psychosis samples, such as that of Haugan and Castillo (1999), who found high levels of dissociative symptoms in patients with clinical diagnoses of psychosis. In an investigation of dissociation experiences in 30 recently admitted female inpatients with 'schizophrenia spectrum disorders', Schäfer et al. (2006) found a mean DES total score of 21.0 ( $SD = 17.7$ ), which is comparable to that found within the current study. Current results are also consistent with the relatively higher DES scores reported by people diagnosed with schizophrenia relative to non-clinical respondents (Bernstein & Putnam, 1986; van Ijzendoorn & Schuengel, 1996). Further, this is in keeping with studies suggesting significant associations between the DES and schizotypy (Startup, 1999). The current study extends previous literature by specifically demonstrating increased dissociative experiences in a first-episode psychosis group relative to a partially-matched general population sample.

These results suggest dissociation is related to psychosis. Taking the perspective that dissociation involves structural disintegration of mental functions provides some theoretical context for the current finding, in that both psychosis and dissociation "...involve... disconnections between brain modules and subsystems responsible for thought, feeling, perception and identity, and both frequently involve difficulty distinguishing between internal and external reality" (Schäfer et al, 2008. p. 143). Although beyond the scope of the current study, these results do not preclude an aetiological role for dissociation conferring psychosis vulnerability.

As discussed in Section 2, the current findings may be unsurprising if psychosis and dissociation are viewed as essentially similar, or overlapping constructs (Corstens, 2008; Moskowitz & Schäfer et al., 2008) perhaps linked by common issues such as traumatic aetiology, cognitive deficits and fantasy proneness (Giesbrecht & Merckelbach, 2008; Startup, 1999). The current study did not aim to disentangle the concepts of dissociation and psychosis. However, taking the perspective that they represent distinct phenomena, the removal of item 27 on the DES did at least suggest that the current results were not confounded by overlap between dissociative and psychotic experiences.

As dissociative experiences are frequently viewed as traumatic in origin (Putnam, 1995; Van der Kolk et al, 1996), and are characteristic of PTSD and acute stress disorder (Cardeña & Gleaves, 2007), it may follow that these increased levels of dissociation within the psychosis group could be a consequence of the trauma associated with a first-episode psychosis (Morrison et al., 2003). This issue of causality is discussed in Section 5.9.



**5.4 Hypothesis three:** *Scores on a measure of self-concept clarity will be significantly lower in a first-episode psychosis group as compared to a non-clinical group'*

The first-episode psychosis group reported significantly lower scores on the SCCS than the non-clinical group, indicating lower self-concept clarity. These results were highly significant, and the effect size fell within the 'large' range. This strongly supported hypothesis three.

In the current study, self-concept clarity was used as a proxy measure of the degree of integration within the self-concept structure. Self-concept clarity was defined as the "extent to which self-knowledge is clearly and confidently defined, internally consistent, and temporally stable" (Campbell et al., 1996. p. 141). The finding of lower scores within a first-episode psychosis sample therefore indicate that these individuals have lower levels of self-concept integration compared to those who had not experienced psychosis, partially matched on other demographic variables. This finding is consistent with theory and the limited research relating to self-concept in psychosis, as presented in Section 2. For example, less self-concept clarity is consistent with Hemsley's (1998) suggestion that information-processing difficulties in psychosis are associated with a disrupted sense of self. Nieznanski (2003) found that people diagnosed with schizophrenia see themselves as less distinct from other people, and also as changing more over time. Gara et al. (1989) compared patients with a diagnosis of schizophrenia against a control group and found that the clinical group showed less elaboration of their self-structure. Furthermore, Spörle (2007) found that people with psychosis showed low 'self-elaboration', saw themselves as different from other people and had a high degree of conflict within their self-concept.

The current study extends previous research findings by specifically examining self-concept clarity and the associated theory of self-concept integration in a first-episode psychosis sample. Further, this study suggests that the use of self-report is a valid method

of examining self-concept within psychosis samples, as most previous research has relied upon task-based methodologies (e.g. Gara et al., 1989; Nieznanski, 2003; Sporle, 2007).

The current results extend those of Preston (2008), who found that self-concept clarity accounted for significant variance in psychosis-like experiences such as delusional beliefs, hallucination proneness, impulsive non-conformity and unusual experiences within the general population. Following Preston (2008), the findings of the current study extend the associations between self-concept clarity and psychopathology into the realm of clinically significant psychosis.

To date, self-concept clarity has been studied exclusively in relation to depression, anxiety, interpersonal rejection, perceived stress, self-esteem, coping, social problem solving, subjective well-being and reactions to failure feedback (Ayduk, Gyurak & Luerssen, 2009; Bechtoldt et al., 2010; Butzer & Kuiper, 2006; Ritchie et al., 2010; Smith et al., 1996; Stopa et al., 2010), with the general finding that lower self-concept clarity is deleterious to one's mental well-being. Consistent with such research and theory in the area (e.g. Campbell et al., 2003; Donahue et al., 1993; Markus & Wurf, 1987; Stopa et al., 2010) structural aspects of the self-concept are clearly important across a variety of domains; the current study offers preliminary evidence that this is extendable to clinically-significant psychosis. Although a modest theoretical step, the current study suggests that psychosis is associated with a less integrated self-concept, characterised by a lack of confidence, clarity, consistency and permanence in one's understanding of oneself.

However, there are important issues when considering lower self-concept clarity within the first-episode psychosis sample. Perhaps the most important of these is disentangling the precise nature of this relationship, raising the question of causality. This is discussed further in Section 5.9.

**5.5 Hypothesis four: 'Childhood trauma will be positively correlated with dissociative experiences'**

There were significant positive correlations between all CTQ measures of childhood trauma and DES-II scores in the aggregate sample. When investigated specifically within the first-episode psychosis group, significant positive correlations remained between DES-II scores and emotional abuse, physical abuse, emotional neglect, physical neglect and an overall measure of trauma. Although for the clinical group the correlation between sexual abuse and DES-II was initially positive though non-significant, this was most likely influenced by a restricted range of scores on this subscale and the limited sample size. However, excluding individuals scoring above zero on the CTQM/D subscale rendered sexual abuse significantly positively correlated with DES scores. Excluding participants scoring on the CTQM/D scale did not otherwise affect the direction or significance of correlations across either the aggregate or clinical sample. Furthermore, using the amended DES-II score did not influence results. Emotional abuse, physical neglect and CTQ total consistently showed the strongest correlations with DES-II scores across the aggregate and clinical group. Overall, these results provide strong support for hypothesis four.

These results are consistent with the hypothesis that dissociation has a traumatic aetiology (Irwin, 1999; Putnam, 1995; Van der Kolk et al., 1996); specifically this aetiology seems associated with events occurring in childhood. This is consistent with previous research in this area. For example, Startup (1999) found effect sizes of  $d = .52$ , and  $d = .45$  between DES scores and childhood sexual and physical abuse, respectively. In a large meta-analysis van Ijzendoorn and Shuengel (1996) found significant associations between reports of physical and sexual abuse and DES scores.

The results of the current analysis specifically involving the clinical group supports the hypothesis that dissociation is related to childhood trauma in psychosis samples: This

finding is also consistent with previous research in this area (e.g. Perona-Garcelán et al., 2010; Schäfer et al., 2006; Vogel et al., 2009). The current results showing a link between childhood trauma and dissociation specifically in a first-episode psychosis sample are also consistent with that of similar research focussing upon this group. For example, Greenfield et al. (1994) found that of 71 psychosis patients admitted for the first time to a psychiatric inpatient unit, those who reported childhood physical and sexual abuse had higher levels of dissociation.

Although the traumatic origins of dissociation are often considered in relation to physical and sexual abuse (e.g. van Ijzendoorn and Shuengel, 1996), the current study found particularly strong relationships between childhood emotional abuse and physical neglect. Although this may be related to the somewhat higher range of scores associated with these subscales as opposed to physical and sexual abuse scales, this parallels the findings of Vogel et al. (2009), who reported that childhood emotional abuse and physical neglect as measured by the CTQ were associated with high scores on the DES in 80 patients with psychosis. Similarly, Holowka et al. (2003) administered the CTQ and DES to 26 patients with a diagnosis of schizophrenia, finding that emotional abuse was most strongly positively correlated with dissociation scores. Sar et al. (2010) investigated the relationship between the CTQ and DES in 70 people diagnosed with schizophrenia, finding that only childhood physical abuse and physical neglect predicted dissociation. Lastly, Schäfer et al. (2006) found that CTQ physical neglect and emotional abuse were significantly correlated with DES scores for female in-patients with schizophrenia. In combination with the current study, these results implicate childhood maltreatment experiences more generally, specifically those relating to emotional abuse and physical neglect, in the aetiology of dissociative experiences both within an aggregated sample and a first-episode psychosis group.

Interpreting the associations between childhood trauma and dissociation requires caution. Perhaps the most important issue is that of causality. The clearest, and perhaps simplest, interpretation of these findings and those of past cross-sectional research is that dissociation is a consequence of traumatic childhood experiences. However, it is also possible that those people experiencing more dissociation may over-report childhood maltreatment. For example, Merkelbach and Muris (2001) suggest that dissociation is associated with fantasy proneness, confabulation, pseudomemories and suggestibility, all of which could invalidate simple causal models of trauma and dissociation. This issue will be discussed further in Section 5.9.

**5.6 Hypothesis five: *'Childhood trauma will be negatively correlated with self-reported self-concept clarity'***

For the aggregate sample, analyses revealed significant negative correlations between all CTQ measures of childhood trauma and SCCS scores. The strongest associations were between emotional abuse, emotional neglect, physical neglect and overall trauma. However, the relatively low range of scores on the CTQ sexual and physical abuse subscales potentially accounts for their weaker association with the SCCS. When investigated specifically within the first-episode psychosis group, significant negative correlations remained between the SCCS and physical neglect, and overall trauma. Excluding individuals scoring above zero on the CTQM/D subscale from the analysis did not change the direction or significance of correlations between CTQ subscales or CTQ total and SCCS in the aggregate sample. However, excluding such participants when investigating only the clinical group, significant negative correlations remained between physical neglect, CTQ total and SCCS scores; furthermore, emotional abuse also achieved a statistically significant negative correlation. Overall, these results support hypothesis five.

As discussed, the current study included self-concept clarity as a proxy measure of integration within the self-concept structure. Consequently, and in conjunction with the results from hypothesis four, the current study suggests that higher levels of childhood trauma are associated with less self-concept integration, characterised by low confidence, clarity, consistency and permanence in one's understanding of oneself. Across both the aggregate and first-episode psychosis samples, physical and sexual abuse showed the weakest associations with reduced self-concept clarity, potentially underpinned by a restricted range of scores on these subscales. Emotional abuse, emotional neglect, physical neglect and CTQ total demonstrated the strongest relationships. However, emotional neglect did not reach statistical significance in the first-episode psychosis group, potentially as a consequence of the small sample size.

These results are broadly consistent with the limited theory and research available in this area. For example, utilising the SCCS as a proxy measure of self-concept structure and its relationship to psychosis-like experiences, Preston (2008) suggested that traumatic events could impact upon self-concept integration. Sporle (2007) found that individuals diagnosed with psychosis who had experienced childhood trauma displayed less 'self-elaboration', saw themselves as more different from other people and had more conflict within their self-concept. In addition, Lutz and Ross (2003) provided evidence consistent with the results of the current study when they examined the relationship between a measure of self-concept integration and parental bonding. They found that self-concept integration was associated with parental over-protectiveness and lack of care. Although the present study is broadly consistent with associations between lack of care (i.e. neglect) and lower self-concept integration, it does seem at odds with the finding that over-protectiveness may also be associated with self-concept disintegration. For example, the current features of childhood maltreatment (i.e. abuse and neglect) can be construed as the antipode to overprotection. However, it is difficult to draw direct comparisons with the present study and that of Lutz and Ross (2003) due to the differences in measures used. For example, the CTQ is not

limited to assessing maltreatment in the context of parental relationships; furthermore, it is possible that experiences such as over-protectiveness, abuse and neglect could co-occur within an individual's childhood.

Following Lutz and Ross (2003), the current results support the suggestion that negative childhood experiences are associated with a poorly integrated self-concept. Furthermore, given the current study's use of the CTQ, it would appear to offer preliminary support to Lutz and Ross' (2003) hypothesis that "*Possibly, fragmentation in the self develops...as a function of early trauma, neglect and abuse...*" (p. 554). Specifically, the current study extends this hypothesis by providing initial evidence of a link between childhood trauma and lower self-concept integration as defined by the SCCS, across an aggregate and first-episode psychosis sample.

#### **5.7 Hypothesis six: 'Dissociative experiences will be negatively correlated with self-concept clarity'**

For the aggregate sample, analyses revealed significant negative correlations between SCCS scores and the DES-II, with this correlation being within the 'strong' effect range (Cohen, 1988). However, there were marked differences in this relationship across the clinical and non-clinical groups. Examining the clinical group alone increased the strength of the negative correlation between the SCCS and DES-II, whilst for the non-clinical group the relationship was smaller, although retained a trend towards a non-significant negative correlation. It appeared that this finding was related to the somewhat restricted range of DES-II scores in the non-clinical sample. Furthermore, these findings were unrelated to the confounding item on the DES-II. These results broadly support hypothesis six.

This hypothesis was underpinned by the theoretical similarities between dissociation and self-concept clarity, in that both concepts appeared related to the notion of self-concept

integration (see Section 2.15). The current results are broadly consistent with this theory, and are in line with the limited research which has examined the association between dissociation and self-concept integration. For example, Pollack et al. (2001) found negative correlations between the SCCS and DES. Although employing a different method of assessing self-concept integration than that used in the current study (SCD; Donahue et al., 1993), Lutz and Ross (2003) found that lower self-concept integration was associated with higher levels of dissociation in a sample of 260 students. Furthermore, when investigating relationships between self-concept integration and 'adjustment' variables using multiple regression models, Lutz and Ross (2003) found that dissociation emerged as one of the most important predictors.

In summary, and consistent with the available literature, the results of the current study support the hypothesis that dissociation and self-concept clarity are inversely related. Furthermore, the current study extends these findings to a first-episode psychosis sample. The possibility that this association is underpinned by commonalities in terms of self-concept integration is tentatively supported by the current results. However, the correlational analysis presented here is insufficient to provide adequate accounts of the underlying relationship between these two variables. Although dimension reduction procedures, such as principal components analysis, were considered in order to establish a fuller account of any possible latent factor underpinning the SCCS and DES-II, the current sample size was insufficient. Consequently, it is appropriate only to conclude that the current study does not discount the possibility that both the SCCS and DES-II are measures of self-concept integration.



**5.8 Hypothesis seven: ‘Self-concept clarity and dissociation will mediate the relationship between childhood trauma and psychosis’**

Dissociation positively mediated the relationship between physical neglect and psychosis group membership, suggesting that the influence of physical neglect in increasing the likelihood of experiencing psychosis was explicable through the effects of increased dissociation. However, dissociation did not emerge as a significant mediator in the analyses investigating other forms of childhood abuse and their relationship to psychosis. Overall, these results provide some tentative support for the hypothesis that dissociation mediates the relationship between childhood trauma and psychosis.

The results of the current study provide some support for suggestions that the pathway to psychosis may be via a dissociative response to trauma (e.g. Read et al., 2001), potentially through the mechanism of a diminished sense of self and consequent impairments in reality testing (Allen et al., 1997; Kilcommons & Morrison, 2005). However, the current study found support for this hypothesis only in terms of dissociative responses to physical neglect. This particular finding is somewhat consistent with previous research in this area. For example, in the only available study to date which has employed mediational analyses to investigate the links between childhood trauma, dissociation and psychosis, Varese et al., (in press) found that the relationship between an overall measure of childhood trauma (CATS) and hallucination-proneness was positively mediated by dissociation. Furthermore, Varese et al. (in press) found that dissociation mediated the relationship between childhood neglect and hallucination-proneness in an aggregate sample of hallucinating patients, remitted hallucinators and non-clinical participants.

The current findings that effects of total trauma, emotional abuse, physical abuse, sexual abuse or emotional neglect on psychosis risk were not mediated by dissociation is in contrast to other available research. For example, Varese et al. (in press), found that

dissociation emerged as a significant mediator in the relationship between sexual and emotional abuse and hallucination proneness. Although not reaching statistical significance, the current study did show relatively large indirect effects for physical and sexual abuse. This finding, and the inconsistencies with previous literature, is potentially related to the small sample size and the relative rarity of these experiences within the sample. Furthermore, differences in terms of measurement of childhood trauma are likely to obfuscate comparisons across studies. Lastly, the current study's use of a heterogeneous psychosis sample may explain differences between the current results and those of Varese et al. (in press), who utilised specific psychosis experiences (hallucination-proneness) as an outcome measure. Given the lack of data concerning the symptom-profile of the current study's population, differences between these results and those of Varese et al (in press) could be explained by dissociation being specifically implicated in the link between trauma and hallucinations (Kilcommons & Morrison, 2005; Morrison & Peterson, 2003; Moskovitz & Corstens, 2008).

Self-concept clarity mediated the relationship between psychosis group membership and total childhood trauma, emotional abuse, physical abuse, emotional neglect and physical neglect. The most robust finding appeared in relation to physical neglect. There was also a comparatively large, although non-significant indirect effect for sexual abuse. These findings provide strong support for the hypothesis that the effects of childhood trauma on psychosis risk are explicable through the mechanism of decreasing self-concept clarity. Although no other research has yet been conducted in this area, the current results are consistent with the suggestion that a coherent sense of self and identity is related to the reality testing deficits, confusion, disorganisation and disorientation associated with psychosis experiences (Allen et al., 1997). As self-concept clarity was included in the current study as a measure of self-concept integration, and following the discussion of hypothesis five, these results provide initial evidence that childhood trauma contributes to psychosis vulnerability by reducing self-concept integration.

## **5.9 Methodological considerations**

Perhaps the most pertinent methodological consideration in the current study is that of causality. Although results are generally consistent with the theory that childhood trauma causes psychosis, partly acting through the mechanism of increased dissociation and lower self-concept clarity, inferring causality from cross-sectional research is inappropriate. For example, as discussed in Section 2, controversy remains within the academic literature as to whether childhood trauma causes psychosis. Although the simple casual links presented in the analysis were based upon available theory, causal flow may be more complicated.

As considered in relation to dissociation, it is possible that reverse causality may be the case, in that the experience of dissociation, lower self-concept clarity or psychosis may lead to increased reporting of childhood maltreatment. Similarly, the experience of psychosis may cause dissociative experiences and reduced self-concept clarity. This is consistent with the suggestion that psychosis can be construed as a traumatic event (Morrison et al., 2003). In relation to the current study's use of the self-concept clarity scale as a measure of self-concept integration, it is also likely that the experience of psychosis would impact on a person's sense of self (e.g. Romano et al., 2010). It is also conceivable that the causal links between trauma, dissociation, self-concept clarity and psychosis are bidirectional. For example, dissociation may cause psychosis experiences, and the associated trauma may lead to further dissociation.

The causal relationships discussed within the literature could potentially be based upon unidentified latent variables. For example, given the heavy focus on biological accounts of psychosis, some might argue that experiencing childhood trauma, dissociation, self-concept clarity and psychosis are linked by a common constitutional factor. However, such issues are beyond the scope of the current thesis, and a cross-sectional design was the only

appropriate methodology given the confines of the research. Furthermore, each model presented within this study was theoretically anchored.

Analysis suggested that 51 participants in each group were necessary to achieve sufficient statistical power. However, despite a large pool of potential clinical and non-clinical participants and a considerable recruitment period, only 31 non-clinical and 29 clinical participants took part in the research. This, and the use of non-parametric analyses, eroded the study's power to detect effects, and this may explain some of the non-significant results (i.e. a result of Type II error). This may be especially true for analyses involving sexual and physical abuse, as such experiences were only reported by seven and ten participants, respectively. The mediational analysis was chosen in part due to its increased statistical power. However, 71 participants were still necessary to achieve sufficient statistical power in this analysis, assuming medium effect sizes (Fritz & MacKinnon, 2007). Nonetheless, significant results were found for the majority of hypothesis tests, suggesting that effects were larger than expected.

Although an attempt was made to match the clinical and non-clinical groups on demographic factors, age and employment status differed across the two groups. Consequently, the differences observed in terms of childhood trauma, dissociation and self-concept clarity may not be entirely related to presence/absence of psychosis experiences. Due to the distribution of the data, no non-parametric statistic was available to examine the variables of interest across the two groups whilst 'controlling' for these potentially confounding factors. Furthermore, statistical procedures such as analysis of covariance are unable to achieve such statistical control when non-randomised groups differ on the covariate (see Miller & Chapman, 2001).

Given the complex relationship between trauma and psychosis (Conus, Berk & Schäfer, 2009), an important limitation of the current study is that of omitted variables. For

example, past research has focussed on the role of affect and negative beliefs in the aetiology of psychosis (e.g. Garety, Kuipers, Fowler, Freeman & Bebbington, 2001; Gracie et al., 2007; Morrison, 2001; Morrison et al., 2003), and including these within the current study would have facilitated a broader model of how dissociation and self-concept clarity are associated with psychosis. For example, affect, beliefs and evaluative aspects of the self-concept will possibly interact with structure, and there may be intervening mediating and moderating variables in the relationships between trauma, dissociation, self-concept clarity and psychosis. However, the current study did not aim to provide a comprehensive account of psychosis development, simply to explicate the potential role of self-concept clarity and dissociation. Furthermore, the small sample size prohibited the inclusion of other variables.

The generally higher levels of childhood trauma in the clinical group could have been explained by any propensity of these participants to over-report such experiences. However there is no empirical basis for this, as research has provided support for the reliability of reports of traumatic history in this population (Fisher et al., 2011; Read et al., 2005). The relatively higher levels of CTQ scores in the clinical group could also be explained by the non-clinical group having particularly positive childhoods. However, the mean CTQ scores of the non-clinical sample were broadly consistent with other research examining response tendencies in the general population. For example, investigating the psychometric properties of the CTQ in the general population, Scher et al. (2001) found that the average total CTQ score for all men was 31.71 and for women 31.77. These figures are very similar to the present study's non-clinical sample mean CTQ total of 31.94. This suggests that the significantly higher levels of maltreatment reported by the clinical group were not accounted for by sampling bias in the non-clinical sample.

Although the CTQ is a broad measure of childhood maltreatment, participants commented upon its limitations in identifying difficult early experiences. Several clinical

participants clearly linked their psychosis experiences to childhood adversity; they were frustrated, however, to find that the CTQ did not ask about the issues they saw as important. Frequently cited omissions were bereavement, peer bullying and accidental trauma, and these issues have begun to be examined in the literature (e.g. Kelleher et al., 2008; Morrison & Peterson, 2003). Such experiences may well be implicated in psychosis vulnerability and will be missed if the CTQ is used as the only measure of childhood trauma; this is especially pertinent as the CTQ has been recommended as a common measure in this research area (Bendall et al., 2008). Furthermore, given the focus of the current thesis, no evaluation of trauma occurring in adulthood was conducted which research has suggested may also be important

Recent models of psychosis have focussed upon specific symptoms, as opposed to diagnoses (Bentall, 2003). However, this study examined psychosis, rather than specific experiences such as delusions and hallucinations. In practice, clinical participants were therefore likely to be experiencing a range of positive psychosis experiences. Although this was necessary given the practicalities of the research, utilising a measure of psychosis experiences, or focussing purely on people with a specific complaint (e.g. verbal hallucinations), would have elucidated detailed links between type of trauma and psychosis experiences.

## **5.10 Clinical implications**

The degree of childhood maltreatment reported by clinical participants within this and other research underlines Read et al's (2005) assertion that clinicians should routinely ask clients about such experiences. Maltreatment is very common within the lives of people receiving services for psychosis, and responding to this must become a service priority. The overwhelming majority of people who have experienced childhood trauma and who come into contact with mental health services are not asked about such experiences, and

people typically do not disclose such incidents unprompted (Read, 2005). For example, in a study investigating 191 women who had experienced childhood sexual abuse, the average length of time for an individual to disclose their experiences was 16 years (Read, McGregor, Coggan & Thomas, 2006). Given that such experiences may trigger or underlie psychosis vulnerability, and that those with traumatic childhoods fare badly on a broad range of outcomes, learning to talk about these issues is of paramount importance within mental health services.

Establishing trauma-psychosis links on a case-by-case basis, via the use of psychological formulation, is essential to identify and respond to clinical need. There are a range of evidence-based psychological treatments for people who have experienced child abuse and neglect (Chaffin & Friedrich, 2004). Furthermore, there are developments regarding interventions for people with psychosis and traumatic childhood histories (e.g. Goodman, Rosenberg, Mueser & Drake, 1997; Herder & Redner, 1991). Staff training is essential to highlight the importance of enquiring about childhood maltreatment, and to provide skills and confidence in asking about, and responding to, such disclosures (Cavanagh, Read & New, 2004; Read & Fraser, 1998). In the UK, it is now a Department of Health (DoH) policy that mental health assessments ask about sexual, physical and emotional abuse, and such questions have been integrated into the Care Program Approach (DoH, 2008). Asking about such issues within an early intervention in psychosis context might be especially important, as it could help professionals to respond to, or prevent childhood trauma, given the service's youth focus.

Although childhood trauma is often considered in terms of abuse, the current research also highlights the importance of emotional and physical neglect. Consequently, mental health professionals should also enquire about such experiences, perhaps through the use of tools such as the CTQ; this appears to be a valid means of assessing these less obvious forms of childhood maltreatment which might otherwise go undetected.

Identifying and responding to dissociative experiences in people experiencing a first-episode psychosis emerged as a significant clinical implication. Although it may be difficult to disentangle the two concepts in any particular clinical presentation, dissociation may underpin, or contribute to, psychosis phenomena. Clarifying these issues and their role within a person's experiences will help identify appropriate interventions. For example, specific psychological interventions have been developed to treat dissociation in the context of abuse (e.g. Silberg, 2004; van der Hart, van der Kolk & Boon, 1998). The possibility of structural features of the self-concept being implicated in psychosis prompts the question of whether this may be targeted within psychological therapy. Although not a feature of the most widely utilised psychological intervention for psychosis (cognitive behavioural therapy), therapeutic modalities such as cognitive analytic therapy (CAT), psychoanalysis and schema therapy explicitly conceptualise the self in terms of an organised interactive system as discussed within the current research. For example, CAT has developed a multiple self-states model (Ryle, 1997), and theoretical accounts and treatment suggestions for CAT have been developed for psychosis based upon the premise that this represents impairments in the integration of self (e.g. Kerr, Birkett & Chanen, 2003). However, the evidence base for such therapies in psychosis is, thus far, limited. Nonetheless, this does highlight the need for psychological formulations of psychosis to consider structural aspects of self.

### **5.11 Future research**

There are numerous aspects of the current study which would benefit from further research. As discussed in section 5.9, a significant methodological limitation was the cross-sectional design, which precludes causal inference. However, longitudinal research designs might better assess the temporal relationships between variables such as childhood trauma, dissociation and self-concept clarity. For example, to investigate the extent to which lower self-concept integration is a cause or consequence of experiencing first-episode psychosis, future researchers may wish to administer the self-concept clarity scale



to people deemed 'at risk' of developing psychosis, and re-administer the measure some time later. If people who had lower scores on the self-concept clarity scores at baseline were more likely to make transition to first-episode psychosis, this would support the current theory of lower self-concept integration influencing psychosis risk. If, however, the group who made transition subsequently showed reduced self-concept clarity as a consequence of psychosis, this would implicate a model whereby psychosis causes lower self-concept integration.

One of the biggest difficulties in terms of researching and understanding the potential links between childhood trauma and psychosis risk is the lack of research synthesising the available data. Although several systematic reviews are available (e.g. Bendall et al., 2008), statistical synthesis of this area has to date been lacking. However, a meta-analysis is currently in preparation, which will hopefully clarify the causal associations between childhood maltreatment and psychosis (F. Varese. Personal communication. 14<sup>th</sup> May, 2011).

One of the current study's aims was to investigate the relationship between self-concept clarity and dissociation, as it was theorised that these two measures were conceptually similar. Although there was some support for this hypothesis, this was based upon simple bivariate correlation; consequently, larger studies investigating the relationship between these two scales across different samples should be conducted. This will likely involve dimension reduction strategies such as principal components analysis; furthermore, studies could make use of methods such as structural equation modelling to investigate the associations and interaction of dissociation and self-concept clarity in influencing psychosis risk. Such models could also include other potentially mediating and moderating variables, such as affect and measures of cognition.

Given the limitations of the current study regarding sample size and only partial matching on demographic variables, replication with adequate statistical power and matching will develop the exploratory links introduced within this research. Further research may benefit from focussing upon specific psychosis experiences and their links to dissociation and self-concept clarity. The current research and theory in this area suggests that dissociation may be most related to hallucinations; further, as discussed in Section 2, self-concept clarity is most likely related to 'positive' psychosis experiences. More research is necessary to develop such hypotheses.

As discussed in Section 2, recent research is moving towards examining the specific relationship between 'types' of childhood maltreatment and particular psychosis experiences. Although this will be difficult given the likely co-occurrence of trauma types, future research may also wish to consider other aspects of these experiences. For example, issues such as timing, subjective appraisal of the event, frequency, relationship to the abuser, attachment style, presence/absence of positive relationships, treatment, coping style and so on may all moderate or mediate the effects of childhood trauma in influencing psychosis risk. Lastly, a broader conceptualisation of the experiences that constitute childhood trauma will be helpful in future research.

## **5.12 Summary**

This study provided further evidence of the association between childhood maltreatment and psychosis, extending the findings of the literature by examining a broad range of such experiences in an early-episode psychosis group as compared to a partially-matched general population sample. Results extend previous research by finding high levels of dissociation within the psychosis sample, and lower levels of self-concept clarity. Furthermore, there was a significant inverse relationship between self-concept clarity and dissociation, suggesting that both may relate to the latent variable of self-concept integration. Evidence emerged that negative childhood experiences relate to a poorly integrated self-concept, in

terms of higher dissociation and lower self-concept clarity. Through mediational analysis, the influence of physical neglect in increasing the likelihood of experiencing psychosis was explicable through the effects of increased dissociation. Lastly, self-concept clarity mediated the relationship between psychosis and total childhood trauma, emotional abuse, physical abuse, emotional neglect and physical neglect.

Despite methodological issues such as small sample size, imperfect matching and issues of causality associated with cross-sectional research, results suggested that the increased psychosis risk associated with childhood maltreatment relates to the impact of these experiences on self-concept integration. This research highlighted the potential for more detailed conceptualisations of self to contribute to psychopathology research. Furthermore, this study demonstrated the potential for cross-fertilising clinical and social psychological theory and methods.

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# **APPENDIX A**

## **Literature search strategy**

## APPENDIX A

### Literature Search Terms

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Databases searched	Search terms
PSYCHinfo	Self-concept
MEDLINE	Self-concept clarity
Science Direct	Self* AND psychosis
Scopus	Self* AND schizophrenia
	Dissociation
	Dissociation AND schizophrenia
	Dissociation AND psychosis
	Trauma AND psychosis
	Trauma AND schizophrenia
	Childhood trauma AND schizophrenia
	Trauma AND self* AND psychosis
	Trauma AND hallucinations
	Trauma AND delusions
	Abuse AND psychosis
	Abuse AND schizophrenia
	Neglect AND psychosis
	Neglect AND schizophrenia
	Trauma AND Dissociation

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# **APPENDIX B**

## **Overview of the power analysis method**



POWER ANALYSIS

Computation of the sample size required for the proposed study was complicated by research suggesting differing effect sizes for certain childhood traumatic experiences as related to different psychosis symptoms, in addition to the use of disparate trauma measures and occasional conflation of childhood and adulthood trauma. However, research to date has shown a medium to large effect size ( $r = .459$ ) as defined by Cohen (1988) between overall Childhood Trauma Questionnaire (CTQ) scores and a general measure of positive psychosis symptoms in a clinical sample (Üçok & Bikmaz, 2007). Using a different metric, this value of  $r$  can be expressed as an effect size of  $d = 1.033$  (calculation courtesy of Wilson, 2002). Initial analysis using the GPower statistical program (Faul & Erdfelder, 1992) indicated that to achieve .8 power based upon this effect size for the proposed univariate analyses comparing trauma scores across clinical and non-clinical groups, stipulating  $\alpha = .05$ , a total sample size of 26 (13 per group) would be required. As the effect size  $d$  was derived from a converted correlational statistic, as opposed to mean difference between psychosis and non-psychosis groups, it was felt appropriate to use the more conservative figure of  $d = .8$  (suggested by Cohen (1988) as a large effect size); inputting this effect size into the GPower programme, retaining a desired power of .8 with  $\alpha = .05$ , suggested a total sample size of 42 (21 per group).

No research has compared self-concept clarity scores across psychosis and non-psychosis samples, leading to some difficulty calculating the necessary sample size for univariate comparison; however, previous research by Preston (2008) found  $r^2$  values of .15 to .26 between SCCS and various positive psychosis-like experiences. Given that the proposed psychosis group would be likely to have a combination of the psychosis-like experiences examined by Preston (2008), a median effect size value of  $r^2 = .205$

was considered appropriate to use in the sample size calculation. Using a different metric, this value of  $r^2$  can be expressed as  $d = 1.016$  (calculation courtesy of Wilson, 2002); however, due to the issues identified in the previous sample size calculation, a more conservative effect size of  $d=.8$  was inputted into the GPower programme, resulting in an initial necessary sample size of 42 (21 per group) for statistical power of .8 with  $\alpha = .05$ .

Binary logistic regression is proposed as a major statistical analysis for the intended study. It would appear that no study has yet examined CTQ total scores as related to broad definitions of clinical psychosis; however, research which examined traumatic childhood experiences broadly similar to those assessed by the CTQ (i.e. emotional, physical, psychological or sexual) has suggested odds ratios of 7.3 for 'caseness' levels of psychosis following exposure to childhood abuse, even after controlling for the confounding effects of other risk issues (Jansenn et al, 2004). Given differences between the trauma measure used in Jansenn et al's (2004) research and that proposed for the author's intended study, it was not felt appropriate to suppose similarly high effect sizes. As such, a more conservative odds ratio of 2 was utilised for sample size calculation.

In addition to anticipated odds ratios, a sample size calculation for multivariate logistic regression requires an estimation of the degree to which predictor variables share variance. Although research has shown the CTQ total score to significantly correlate with a measure of dissociation ( $r = .32$ , Schafer et al, 2008), this concept was not felt to converge sufficiently with the theoretical basis of self-concept clarity. Considering the absence of relevant research to guide sample size calculation for the proposed multivariate logistic regression analyses (due to the exploratory nature of the proposed study), it was felt theoretically appropriate to assume an  $r^2$  statistic of .2 for the relationship between self-concept clarity and childhood trauma. Using the Power

Analysis and Sample Size computer program (PASS), it was found that a logistic regression of a binary response variable with a sample size of 64 observations achieves .8 power at a .05 significance level to detect a change in the probability of  $Y=1$  from the value of .5 at the mean of CTQ scores to .667 when CTQ scores are increased by one standard deviation above the mean. This change corresponds to an odds ratio of 2. An adjustment was made since the predictor variables in the logistic regression were estimated to obtain an  $r^2$  of .2.

In summary, initial sample size analyses suggested a total of 64 participants at a ratio of 1:1 for clinical and non-clinical groups would provide adequate statistical power for the proposed analyses. However, following feedback from the University of Liverpool Division of Clinical Psychology research committee, the aforementioned power analyses were repeated using more conservative effect sizes. These suggested 102 participants at a ration of 1:1 for clinical and non-clinical groups would provide sufficient power for the proposed analyses.

# **APPENDIX C**

**PANSS cut-off criteria used by the Early  
Intervention in Psychosis team**

PANSS cut-off criteria used by EI team

**'P'scores**

Any 'P' item with a score of 4 or more, present for a week or more (currently or in the past).

**BUT**

More weight is given to P1, P2 and P3.

If P1, P2 and P3 are absent (currently or in the past) and only a single item from P4 – 7 is present, then need to make a clinical judgement about what this means.

<b>P item</b>	<b>If this is the only P item present (currently or in the past) then:</b>
P1 = Delusions	OK
P2 = Conceptual disorganisation	OK
P3 = Hallucinatory behaviour	OK
P4 = Excitement	Need to rule out ADHD and hypomania without psychosis
P5 = Grandiosity	Need to rule out personality problem
P6 = Suspiciousness / persecution	Needs to score more than 5
P7 = Hostility	Insufficient on its own

# **APPENDIX D**

## **Example consent form**



### CONSENT FORM V.1.0

**Title of Research Project:** Trauma and psychosis: investigating dissociation and self-concept clarity.

**Researcher(s):** Gavin Evans – Lead Researcher  
Dr. Bill Sellwood - Principal Supervisor, University of Liverpool.  
Dr Graeme Reid –

Please  
initial box

Dr. Phil Preston – Research Advisor.

1. I confirm that I have read and have understood the information sheet dated 11/12/09 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my rights being affected.
3. I understand that, under the Data Protection Act, I can at any time ask for access to the information I provide and I can also request the destruction of that information if I wish.
4. I agree to take part in the above study.

\_\_\_\_\_  
Participant Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name of Person taking consent

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Researcher

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

**The contact details of lead Researcher (Principal Investigator) are:**

Gavin Evans  
University of Liverpool  
Division of Clinical Psychology  
Whelan Building, Brownlow Hill  
L69 3GB

# **APPENDIX E**

## **Information sheet for professionals**





### 1. Title of Study

Trauma and psychosis: investigating dissociation and self-concept clarity.

### 2. Version Number and Date

V. 1.1 11/12/09 – Information for professionals

### 3. Invitation Paragraph

You are being invited to help recruit participants for a research study being carried out by the following people:

- Gavin Evans, Trainee Clinical Psychologist, University of Liverpool (Principal Investigator)
- Dr Bill Sellwood, Principal Supervisor, University of Liverpool.
- Dr Graeme Reid, External Supervisor,
- Dr Phil Preston, Research Advisor.

In order to help, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and feel free to ask if you would like more information or if there is anything that you do not understand. Thank you for reading this.

### 3. What is the purpose of the study?

Research has suggested that difficult life events might increase the chance of people experiencing psychosis symptoms such as hearing voices that other people can't hear, seeing things other people can't see and having unusual beliefs. However, we are still unsure exactly why this link might exist, and this is important in understanding and treating psychosis. One thing that some researchers have been concentrating on is understanding how difficult childhood experiences might, or might not affect people later in their lives. One idea that has been suggested is that difficult experiences in childhood might affect peoples' understanding of themselves ('self-concept clarity'). Another thing that has been looked at is 'dissociation', which is a term used to describe experiences such as feeling 'unreal' or memory blanks which can happen when people have difficult or stressful experiences.

This study is looking at people being treated for their first experience of psychosis, and comparing them with people of a similar age, gender, ethnicity, family and social background who have never had such an experience. People will be compared in terms of difficult childhood experiences, self-concept clarity and dissociation. Results will help to understand better the link between difficult experiences in childhood and psychosis.

#### **4. Why have my clients been chosen to take part?**

Because the study is comparing two groups, people will be asked to take part either if they have experienced a first episode of psychosis, or if they never had experiences such as this. The study is looking for approximately 51 people in each group. You will be helpful to identify any of your clients who may be suitable to take part in the study, which will be to think about people who are not experiencing an acute episode of psychosis.

#### **7. What will I need to do?**

A suitable appointment will be made to talk through the study in detail with Gavin Evans. This will involve discussing all aspects of the study, and checking that you understand the information and are able to convey this to potential participants. Following this, information sheets and consent forms will be distributed to your clients who you have helped to identify as suitable to take part in the study. You will then be asked to discuss the research briefly with your clients at your next clinical meeting, at which point those clients interested in participating will make an appointment to meet with Gavin Evans. Completing the questionnaires should take between 20-40 minutes, and participants will only be required to complete the questionnaires once.

Participants will be asked to provide consent to examine their clinical notes, to make sure that they are eligible to take part in the study. Assuming your clients consent to this, you may be asked to assist Gavin Evans to access these. If it is found that the client's notes do not contain a completed Positive and Negative Syndrome Scale, your client will be asked to complete this in an assessment interview conducted by Gavin Evans. This assessment would then be included in the client's clinical notes.

#### **8. Expenses and / or payments**

Participants will be reimbursed for travel costs involved in participating in the research, up to a maximum of three pounds, on production of proof of travel.

People who complete all of the questionnaires will be provided with the opportunity to be entered into a prize draw with the chance of winning store vouchers to the value of £100 (first prize) and 2 second prizes of £50. After all the information needed for the research has been collected, the winners will be chosen randomly and notified by post.

#### **9. Are there any risks in taking part?**

Because one of the study questionnaires asks about difficult childhood experiences, it is possible that some people may become upset when completing this. Participants do not need to continue to answer questions if they find them difficult or upsetting, and Gavin Evans would be available to talk to people about their feelings and offer them support. If this helped, and participants felt comfortable enough to do so, they could then continue to answer the questions. Alternatively participants would have the option of withdrawing from the rest of the study at any time. If participants became upset, then Gavin Evans would talk with them about contacting a member of their care team to discuss this; they would be asked to consent to this prior to filling in the questionnaires. If any person became very upset during the appointment to the extent that they appeared to present a risk to themselves or others, Gavin Evans would call the police or ambulance service.

If at any time during their conversations with him participants were to talk about anything which made Gavin Evans concerned about their safety or that of others, or which suggested that a law had, or was to be broken, then he might need to pass this information on to others, which may include members of the care team. However, if this were to occur, then Gavin Evans would discuss this with the participants first, and they would also be reminded about this process before completing the questionnaires.

## **10. Are there any benefits in taking part?**

Although participation in the study is unlikely to be directly beneficial to you or your clients, the information provided by the study may be helpful in the future for individuals who have experienced traumatic life events and psychosis.

## **11. What if I am unhappy or if there is a problem?**

If you are unhappy, or if there is a problem, please feel free to let us know by contacting Gavin Evans and he will try to help. If you remain unhappy or have a complaint which you feel you cannot come to us with then you should contact the Research Governance Officer on 0151 755 3000. When contacting the Research Governance Officer, please provide details of the name or description of the study (so that it can be identified), the researcher involved, and the details of the complaint you wish to make.

## **12. What about confidentiality?**

For those people who decided to take part in the study, information will be collected from members of their care team (to identify who might be suitable for the study), case notes (to make sure clients are eligible) and the client themselves.

The only people who will have access to personal information will be those directly involved in the study. Information will be kept in locked storage at the Division of Clinical Psychology, University of Liverpool. All of your personal information will be kept confidential, and names would be replaced with participant numbers. Electronic information will be filed anonymously using the university computer network. Following completion of the study, information will become the responsibility of the Division of Clinical Psychology, University of Liverpool and will be kept for 10 years. Following this, the information will be destroyed by the University Records Management Service.

Information will be used only for the current study.

## **13. Will my taking part be covered by an insurance scheme?**

Participants taking part in a University of Liverpool ethically approved study will have cover.

## **14. What will happen to the results of the study?**

At the end of the study, appointments will be made with the Early Intervention team during which Gavin Evans will present the results of the study. These presentations will be advertised using posters in the Early Intervention service. In addition, brief feedback sheets describing the results of the study will be posted to all participants.

We hope to eventually publish this study in a scientific journal, which may be widely read; however, no participants or team members would be identifiable from this as no personal information would be included. Copies of the published study would be made available to the Early Intervention service.

## **15. What will happen if my clients want to stop taking part?**

Participants are free to withdraw at any time, without giving any explanation. Information that has been collected up to the point of withdrawal may be used, if they are happy for this to be done. Otherwise they may request that information is destroyed and no further use is made of it.

## **16. Who can I contact if I have further questions?**

You can contact:

Gavin Evans (Principal Investigator)

University of Liverpool  
Division of Clinical Psychology  
Whelan Building  
Brownlow Hill  
L69 3GB

**17. Criminal Records Bureau check (CRB)**

All of the researchers involved in this study have obtained a CRB disclosure. Anybody who takes part in the study may request evidence of this from the Principal Investigator, Gavin Evans.

# **APPENDIX F**

**Information sheet for clinical participants**



UNIVERSITY OF  
LIVERPOOL

**1. Title of Study**

Trauma and psychosis: investigating dissociation and self-concept clarity.

**2. Version Number and Date**

V. 1.1 11/12/09 – Clinical Group

**3. Invitation Paragraph**

You are being invited to participate in a research study being carried out by the following people:

- Gavin Evans, Trainee Clinical Psychologist, University of Liverpool (Principal Investigator)
- Dr Bill Sellwood, Principal Supervisor, University of Liverpool.
- Dr Graeme Reid,
- Dr Phil Preston, Research Advisor.

Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and feel free to ask if you would like more information or if there is anything that you do not understand. Please discuss this with other people if you wish. We would like to stress that you do not have to accept this invitation and should only agree to take part if you want to. Thank you for reading this.

**3. What is the purpose of the study?**

Research has suggested that difficult life events might increase the chance of people experiencing things such as hearing voices that other people can't hear, seeing things other people can't see and having unusual beliefs. Some people refer to these things as 'psychosis'. However, we are still unsure exactly why this link might exist, and this is important in understanding and treating 'psychosis'. One thing that some scientists have been concentrating on is understanding how difficult childhood experiences might, or might not affect people later in their lives. One idea that has been suggested is that difficult experiences in childhood might affect peoples' understanding of themselves ('self-concept clarity'). Another thing that has been looked at is 'dissociation', which is a term used to describe experiences such as feeling 'unreal' or memory blanks which can happen when people have difficult or stressful experiences.

This study is looking at people being treated for their first experience of psychosis, and comparing them with people of a similar age, gender, ethnicity, family and social background who have never had such an experience. People will be compared in terms of difficult childhood experiences, self-concept clarity and dissociation. Results will help to understand better the link between difficult experiences in childhood and 'psychosis'.

#### **4. Why have I been chosen to take part?**

Because the study is comparing two groups, people will be asked to take part either if they have experienced a first episode of 'psychosis', or if you they never had experiences such as this. The study is looking for approximately 51 people in each group. You have been chosen to take part as you are being cared for by the Early Intervention in Psychosis team, which is called the 'clinical' group in this study.

You will have been identified as suitable to take part in the study by members of the Early Intervention in Psychosis care team, and you will have agreed to meet with the researcher to discuss the study.

#### **6. Do I have to take part?**

Participating in the study is completely voluntary. If you do not want to participate, your care will not be affected in any way. You will be free to withdraw from the study at any time without needing to give an explanation, and again this will not affect any aspect of your care.

#### **7. What will happen if I take part?**

If you are interested in taking part in the study, a suitable appointment will be made to talk through the study in detail with Gavin Evans. This will involve discussing all aspects of the study, and checking that you understand the information and are able to make an informed decision about whether to participate or not. Following this, you would sign a form saying that you are happy to take part. This appointment could be arranged to be either at your home or somewhere that you usually meet members of your care team.

If you decide to take part in the study, you will have a conversation with Gavin Evans about what can and cannot be kept confidential when talking with him. You will then be asked to provide information such as your age, ethnicity, social background, gender, and clarify whether anybody in your immediate family has experienced 'psychosis'.

You will be asked to provide consent to examine your clinical notes, to make sure that you are eligible to take part in the study. If it is found that your notes do not make this clear, it is possible that you will be asked to take part in a separate assessment interview during which you would be asked questions about your mental health experiences. This would take between 45 to 50 minutes and would be completed by Gavin Evans. This assessment would then be included in your clinical notes, and would be available to members of your care team.

Assuming that you are eligible to take part in the study, and have consented to do so, you will be asked to complete three questionnaires regarding childhood trauma, self-concept clarity and dissociation. These will be completed in the presence of Gavin Evans, and should take between 20-40 minutes to finish. You will only be required to complete the questionnaires once, and you will be responsible for answering the questions as fully and accurately as possible.

This information will then be used to compare your results with those of people who have not experienced 'psychosis'.

#### **8. Expenses and / or payments**

You will be reimbursed for travel costs involved in participating in the research, up to a maximum of three pounds, on production of proof of travel.

People who complete all of the questionnaires will be provided with the opportunity to be entered into a prize draw with the chance of winning store vouchers to the value of £100 (first prize) and 2 second prizes of £50. After all the information needed for the research has been collected, the winners will be chosen randomly and notified by post.

### **9. Are there any risks in taking part?**

Because one of the study questionnaires asks about difficult childhood experiences, it is possible that some people may become upset when completing this. You do not need to continue to answer questions if you find them difficult or upsetting, and Gavin Evans would be available to talk to you about your feelings and offer you support. If this helped, and you felt comfortable enough to do so, you could then continue to answer the questions. Alternatively you would have the option of withdrawing from the rest of the study at any time. If you became upset, then Gavin Evans would talk with you about contacting a member of your care team to discuss this; you would be asked to consent to this prior to filling in the questionnaires. If any person became very upset during the appointment to the extent that they appeared to present a risk to themselves or others, Gavin Evans would call the police or ambulance service.

If at any time during your conversations with him you were to talk about anything which made Gavin Evans concerned about your safety or that of others, or which suggested that a law had, or was to be broken, then he might need to pass this information on to others. However, if this were to occur, then Gavin Evans would discuss this with you first. You would also be reminded about this process before completing the questionnaires.

If you were to experience any discomfort or disadvantage as part of the study, it would be important for you to tell Gavin Evans about it immediately.

### **10. Are there any benefits in taking part?**

Although participation in the study is unlikely to be directly beneficial to you, the information provided by the study may be helpful in the future for individuals who have experienced traumatic life events and psychosis.

### **11. What if I am unhappy or if there is a problem?**

If you are unhappy, or if there is a problem, please feel free to let us know by contacting Gavin Evans or [redacted] and he will try to help. If you remain unhappy or have a complaint which you feel you cannot come to us with then you should contact the Research Governance Officer on [redacted]. When contacting the Research Governance Officer, please provide details of the name or description of the study (so that it can be identified), the researcher involved, and the details of the complaint you wish to make.

### **12. Will my participation be kept confidential?**

If you decided to take part in the study, information will be collected from members of your care team (to identify who might be suitable for the study), your case notes (to make sure you are eligible) and you individually.

The only people who will have access to your personal information will be those directly involved in the study. Information will be kept in locked storage at the Division of Clinical Psychology, University of Liverpool. All of your personal information will be kept confidential, and your name would be replaced with participant numbers. Electronic information will be filed anonymously using the university computer network. Following completion of the study, information will become the responsibility of the Division of Clinical Psychology, University of Liverpool and will be kept for 10 years. Following this, the information will be destroyed by the University Records Management Service.

Your information will be used only for the current study.



**13. Will my taking part be covered by an insurance scheme?**

Participants taking part in a University of Liverpool ethically approved study will have cover.

**14. What will happen to the results of the study?**

At the end of the study, appointments will be made with the Early Intervention team during which Gavin Evans will present the results of the study. These presentations will be advertised using posters in the Early Intervention service. In addition, brief feedback sheets describing the results of the study will be posted to all participants.

We hope to eventually publish this study in a scientific journal, which may be widely read; however, you would not be identifiable from this as no personal information would be included. Copies of the published study would be made available to the Early Intervention service.

**15. What will happen if I want to stop taking part?**

You are free to withdraw at any time, without giving any explanation. Information that has been collected up to the point of withdrawal may be used, if you are happy for this to be done. Otherwise you may request that information is destroyed and no further use is made of it.

**16. Who can I contact if I have further questions?**

You can contact:

Gavin Evans (Principal Investigator)

University of Liverpool  
Division of Clinical Psychology  
Whelan Building  
Brownlow Hill  
L69 3GB

**17. Criminal Records Bureau check (CRB)**

All of the researchers involved in this study have obtained a CRB disclosure. Anybody who takes part in the study may request evidence of this from the Principal Investigator, Gavin Evans.

# **APPENDIX G**

**Information sheet for non-clinical participants**



UNIVERSITY OF  
LIVERPOOL

**1. Title of Study**

Trauma and psychosis: investigating dissociation and self-concept clarity.

**2. Version Number and Date**

**V. 1.1 11/12/09 NON-CLINICAL FORM**

**3. Invitation Paragraph**

You are being invited to participate in a research study being carried out by the following people:

- Gavin Evans, Trainee Clinical Psychologist, University of Liverpool (Principal Investigator)
- Dr Bill Sellwood, Principal Supervisor, University of Liverpool.
- Dr Graeme Reid,
- Dr Phil Preston, Research Advisor.

Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and feel free to ask if you would like more information or if there is anything that you do not understand. Please also feel free to discuss this with other people if you wish. We would like to stress that you do not have to accept this invitation and should only agree to take part if you want to. Thank you for reading this.

**3. What is the purpose of the study?**

Research has suggested that difficult life events might increase the chance of people experiencing things such as hearing voices that other people can't hear, seeing things other people can't see and having unusual beliefs. Some people refer to these things as 'psychosis'. However, we are still unsure exactly why this link might exist, and this is important in understanding and treating 'psychosis'. One thing that some scientists have been concentrating on is understanding how difficult childhood experiences might, or might not affect people later in their lives. One idea that has been suggested is that difficult experiences in childhood might affect peoples' understanding of themselves ('self-concept clarity'). Another thing that has been looked at is 'dissociation', which is a term used to describe experiences such as feeling 'unreal' or memory blanks which can happen when people have difficult or stressful experiences.

This study is looking at people being treated for their first experience of psychosis, and comparing them with people of a similar age, gender, ethnicity, family and social background who have never had such an experience. People will be compared in terms of difficult childhood experiences, self-concept clarity and dissociation. Results will help to understand better the link between difficult experiences in childhood and 'psychosis'.

#### **4. Why have I been chosen to take part?**

Because the study is comparing two groups, people will be asked to take part either if they have experienced a first episode of 'psychosis', or if they have never had experiences such as this. The study is looking for approximately 51 people in each group. You have been approached as you may not have experienced an episode of 'psychosis'.

You will be chosen because your age, sex, ethnicity, family and social history is similar to the people in the psychosis group. You will be invited to take part in the study through a presentation given at a lesson in an adult learning course.

#### **6. Do I have to take part?**

Participating in the study is completely voluntary. If you do not want to participate, your education will not be affected in any way. You will be free to withdraw from the study at any time without needing to give an explanation, and again this will not affect any aspect of your education.

#### **7. What will happen if I take part?**

If you are interested in taking part in the study, a suitable appointment will be made to talk through the study in detail with Gavin Evans. This will involve discussing all aspects of the study, and checking that you understand the information and are able to make an informed decision about whether to participate or not. Following this, you would sign a form saying that you are happy to take part. Depending on your circumstances, this appointment could be arranged to be either at your home or at the adult learning college.

If you decide to take part in the study, you will have a conversation with Gavin Evans about what can and cannot be kept confidential when talking with him. You will then be asked to provide information such as your age, ethnicity, social background, gender, and clarify whether anybody in your immediate family has experienced 'psychosis'. You will also be asked whether you have had any personal contact with mental health services, or a past or present diagnosis of 'psychosis'. In addition, you will be asked to complete a short questionnaire asking about psychosis-like experiences; this information will help to make sure that you are eligible to take part in the study.

Assuming that you are eligible to take part in the study, and have consented to do so, you will be asked to complete three questionnaires regarding childhood trauma, self-concept clarity and dissociation. These will be completed in the presence of Gavin Evans, and should take between 20-40 minutes to finish. You will only be required to complete the questionnaires once, and you will be responsible for answering the questions as fully and accurately as possible.

This information will then be compared with that of people who have experienced 'psychosis'.

#### **8. Expenses and / or payments**

You will be reimbursed for travel costs involved in participating in the research, up to a maximum of three pounds, on production of proof of travel.

People who complete all of the questionnaires will be provided with the opportunity to be entered into a prize draw with the chance of winning store vouchers to the value of £100 (first prize) and 2 second prizes of £50. After all the information needed for the research has been collected, the winners will be chosen randomly and notified by post.

## **9. Are there any risks in taking part?**

Because one of the study questionnaires asks about difficult childhood experiences, it is possible that some people may become upset when completing this. You do not need to continue to answer questions if you find them difficult or upsetting, and Gavin Evans would be available to talk to you about your feelings and offer you support. If this helped, and you felt comfortable enough to do so, you could then continue to answer the questions. Alternatively you would have the option of withdrawing from the rest of the study at any time. If you did become upset, then Gavin Evans would provide you with support and talk with you about other ways in which you could get help, such as groups or agencies. If any person became very upset during the appointment to the extent that they appeared to present a risk to themselves or others, Gavin Evans would call the police or ambulance service.

*If at any time during your conversations with him you were to talk about anything which made Gavin Evans concerned about your safety or that of others, or which suggested that a law had, or was to be broken, then he might need to pass this information on to others. However, if this were to occur, then Gavin Evans would discuss this with you first. You would also be reminded about this process before completing the questionnaires.*

If you were to experience any discomfort or disadvantage as part of the study, it would be important for you to tell Gavin Evans about it immediately.

## **10. Are there any benefits in taking part?**

Although participation in the study is unlikely to be directly beneficial to you, the information provided by the study may be helpful in the future for individuals who have experienced traumatic life events and psychosis.

## **11. What if I am unhappy or if there is a problem?**

If you are unhappy or if there is a problem, please feel free to let us know by contacting Gavin Evans on ( ) and he will try to help. If you remain unhappy or have a complaint which you feel you cannot come to us with then you should contact the Research Governance Officer on ( ). When contacting the Research Governance Officer, please provide details of the name or description of the study (so that it can be identified), the researcher involved, and the details of the complaint you wish to make.

## **12. Will my participation be kept confidential?**

Information would only be collected from you individually. The only people who will have access to your personal information will be those directly involved in the study. Information will be kept in locked storage at the Division of Clinical Psychology, University of Liverpool. All of your personal information will be kept confidential, and your name would be replaced with participant numbers. Electronic information will be filed anonymously using the university computer network. Following completion of the study, information will become the responsibility of the Division of Clinical Psychology, University of Liverpool and will be kept for 10 years. Following this, the information will be destroyed by the University Records Management Service.

*Your information will be used only for the current study.*

## **13. Will my taking part be covered by an insurance scheme?**

Participants taking part in a University of Liverpool ethically approved study will have cover.

## **14. What will happen to the results of the study?**

At the end of the study, appointments will be made with the adult education college during which Gavin Evans will present the results of the study. These presentations will be advertised using posters in the college. In addition, brief feedback sheets describing the results of the study will be posted to all participants.

We hope to eventually publish this study in a scientific journal, which may be widely read; however, you would not be identifiable from this as no personal information would be included. Copies of the published study would be made available to the college.

**15. What will happen if I want to stop taking part?**

You are free to withdraw at any time, without giving any explanation. Information that has been collected up to the point of withdrawal may be used, if you are happy for this to be done. Otherwise you may request that information is destroyed and no further use is made of it.

**16. Who can I contact if I have further questions?**

You can contact:

Gavin Evans (Principal Investigator)

University of Liverpool  
Division of Clinical Psychology  
Whelan Building  
Brownlow Hill  
L69 3GB

**17. Criminal Records Bureau check (CRB)**

All of the researchers involved in this study have obtained a CRB disclosure. Anybody who takes part in the study may request evidence of this from the Principal Investigator, Gavin Evans.

# **APPENDIX H**

**Further support contact sheet**

## FURTHER HELP AND INFORMATION

## APPENDIX H

Thank you very much for taking part in this study. If you have found any aspect of taking part distressing, here are some organisations and resources which may be able to provide help and information:

- **MIND** – Mind is a charity that helps people take control of their mental health. They do this by providing high-quality information and advice, and campaigning to promote and protect good mental health for everyone. They can be contacted on:

Tel: 0845 766 0163  
Email: [info@mind.org.uk](mailto:info@mind.org.uk)

Mindinfoine  
PO Box 277  
Manchester  
M60 3XN

Visit [www.mind.org.uk](http://www.mind.org.uk) for more information

- **National Association for People Abused in Childhood (NAPAC)** – NAPAC is a charitable organisation which is focused on supporting adults who have been abused in any way as children. NAPAC exists to support survivors of child abuse when they want to talk and receive support. They operate a support line on the following number:

Tel: 0800 085 3330

Advice and support is available:

**Monday**  
10:00am-9:00pm  
**Tuesday**  
10:00am-9:00pm  
**Wednesday**  
10:00am-9:00pm  
**Thursday**  
10:00am-9:00pm  
**Friday**  
10:00am-6:00pm

Visit [www.napac.org.uk](http://www.napac.org.uk) for more information.

- **Samaritans** - The Samaritans provide confidential non-judgemental emotional support, 24 hours a day for people who are experiencing feelings of distress or despair, including those which could lead to suicide. They can be contacted on:

Tel: 08457 90 90 90

Email: [jo@samaritans.org](mailto:jo@samaritans.org)

P.O. Box 9090  
Stirling, FK8 2SA Visit [www.samaritans.org](http://www.samaritans.org) for more information.

- **Childline** - ChildLine is the UK's free, confidential helpline dedicated to children and young people with a variety of difficulties. They can be contacted on:

Tel: 0800 11 11

Visit [www.childline.org.uk](http://www.childline.org.uk) for more information.

In addition to these resources, your GP may be able to help you access further help and support.



# **APPENDIX I**

## **Evidence of ethical approval**



## National Research Ethics Service

08 June 2010

Mr Gavin Evans  
 Trainee Clinical Psychologist  
 Mersey Care NHS Trust  
 University of Liverpool  
 Whelan Building, The Quadrangle  
 Brownlow Hill  
 L69 3GB

Dear Mr Evans

**Study Title:** Trauma and psychosis: Investigating dissociation and self-concept clarity.  
**REC reference number:** 10/H1005/22  
**Protocol number:** SP000472/UoL000564

Thank you for your letter of 01 June 2010, responding to the Committee's request for further information on the above research and submitting revised documentation.

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

### Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, 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. Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.  
 This Research Ethics Committee is an advisory committee to North West Strategic Health Authority

Where the only involvement of the NHS organisation is as a Participant Identification Centre, management permission for research is not required but the R&D office should be notified of the study. Guidance should be sought from the R&D office where necessary.

Sponsors are not required to notify the Committee of approvals from host organisations.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

### Approved documents

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

Document	Version	Date
Covering Letter		26 February 2010
REC application	2.5	25 February 2010
Protocol	1.2	23 October 2009
Investigator CV	G. Evans	12 February 2010
Site specific form	2.5	26 February 2010
Supervisor CV	Sellwood	
Participant Consent Form	1.0	11 December 2009
Letter from Sponsor		05 February 2010
Referees or other scientific critique report		09 July 2009
Summary/Synopsis	1.0	05 February 2010
Questionnaire: Self concept clarity scale		
Questionnaire: Childhood trauma questionnaire		
Questionnaire: Dissociative Experiences Scale II		
Questionnaire: Psychosis Screening Questionnaire		
Researcher's response to peer review		26 October 2009
Response to cost estimations		08 December 2009
Participant Information Sheet: Professionals	1.2	16 April 2010
Participant Information Sheet: volunteers	1.2	16 April 2010
Response to Request for Further Information		01 June 2010

### Statement of compliance

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

### After ethical review

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

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email [referencegroup@nres.npsa.nhs.uk](mailto:referencegroup@nres.npsa.nhs.uk).

10/H1005/22

Please quote this number on all correspondence

Yours sincerely

PP  
Chair

Email:

Enclosures:

"After ethical review – guidance for researchers"

Copy to:

# **APPENDIX J**

**Evidence of research and development committee  
approval**

NHS Foundation Trust

R&amp;D EBP Service

<p><b>Standardised Process for Electronic</b></p> <hr/> <p><b>Approval of Research</b></p>
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17<sup>th</sup> December 2010

Mr Gavin Evans  
 Trainee Clinical Psychologist  
 University of Liverpool  
 Whelan Building,  
 The Quadrangle  
 Brownlow Hill  
 L69 3GB

Dear Gavin,

**Re: Research Governance Decision Letter****Unique SPEAR Identifier:** 0936**REC Reference Number:** 10/H1005/22**Project Title:** Trauma and Psychosis: Investigating Dissociation and Self Concept Clarity

Further to your request for research governance approval, we are pleased to inform you that the Trust has approved the study. Please note when contacting the R&D office about your study you must always provide the project reference numbers provided above.

Trust R&D approval covers research conducted within the Trust; however, you should ensure you have liaised with and obtained the agreement of individual service/ward managers before commencing your research.

**Your responsibilities:**

As a researcher you are responsible to comply with research governance procedures and your study may be monitored by the R&D EBP service. Should you wish to publish your results, approval must be sought to protect the trusts' corporate identity and any information going into the public domain needs to be screened. We request that you submit your recruitment figures to the R&D EBP service on a **monthly** basis and inform the R&D EBP service once you have finished recruiting in the trust so that your records can be updated. Upon completion of your research, please submit a **final summary report**.

Please take the time to read the attached 'Information for Researchers – Conditions of Research Governance Approval' leaflet, which give the conditions that apply when research governance approval has been granted. Please contact the R&D Office should you require any further information. You may need this letter as proof of your approval.

We would like to point out that hosting research studies incurs costs for the Trust such as: staff time, usage of rooms, arrangements for governance of research. We can confirm that in this instance we will not charge for these. However we would like to remind you that Trust costs should be considered and costed at the earliest stage in the development of any future proposals.

May I wish you every success with your research.

Yours sincerely

Research and Effectiveness Officer

cc: Research Governance Sponsor –

Academic Supervisor –

of

Employing Organisation –

Enc: Approval Conditions Leaflet  
TrustTECH Leaflet  
Induction & ID Badge Information

NHS Trust

Tel.

Mr Gavin Evans  
Trainee Clinical Psychologist  
University of Liverpool  
Whelan Building  
The Quadrangle  
Brownlow Hill  
Liverpool L69 3GB

16 June 2010

Dear Gavin

**Project: 2010/13: Trauma and psychosis: investigating dissociation and self-concept clarity**

Thank you for your letter dated 1<sup>st</sup> June enclosing revised documents addressing the issues raised by the Research Ethics Committee. I note that you have discussed the changes with your supervisors in the University and Trust and the amendments can be accommodated.

The Trust's Research Governance Committee approved the research on the 23<sup>rd</sup> March 2010 and Dr Graeme Reid has confirmed the EI service is able to support the research proposal.

Ethical approval has been granted by 10/H1005/22 on the 8<sup>th</sup> June 2010.

Research Ethics Committee under reference

Please take this letter as evidence that can now proceed.

Trust fully supports your study and the project

Trust R&D approval covers all relevant locations within ! ensure you have liaised with and obtained the agreement of individual RMOs, service and/or ward managers regarding recruitment and access. Trust, however, you should

Please take the time to read through this letter carefully and contact the R&D Office should you require any further information. You may need this letter as proof of your approval.

**Honorary Research Contracts (HRC)**

All researchers with no contractual relationship with any NHS body, who are to interact with NHS patients in a way that directly affects the quality of their care, should hold honorary NHS contracts. For more information on whether you or any of your research team will require an HRC please liaise with the R&D office. It is your responsibility to inform us if any of your team does not hold NHS contracts.

**Research Governance**

The Research Governance Sponsor for this study is the University of Liverpool. Whilst conducting this study you must fully comply with the Research Governance Framework. This can be accessed at <http://www.dh.gov.uk> website then use the DH search facility. For further information or guidance concerning your responsibilities, please contact your research governance sponsor.



## **Risk and Incident Reporting**

Much effort goes into designing and planning high quality research which reduces risk; however untoward incidents or unexpected events (i.e. not noted in the protocol) may occur in any research project. Where these events take place on trust premises, or involve trust service users, carers or staff, you must report the incident within 48 hours via the Trust incident reporting system. If you are in any doubt whatsoever whether an incident should be reported, please contact the R&D Office for support and guidance.

## **Confidentiality and Information Governance**

All personnel working on this project are bound by a duty of confidentiality. All material accessed in the trust must be treated in accordance with the Data Protection Act (1998).

## **Protocol / Substantial Amendments**

You must ensure that the approved protocol is followed at all times. Should you need to amend the protocol, please follow the Research Ethics Committee procedures and inform all NHS organisations participating in your research.

## **Monitoring / Participant Recruitment Details**

You will be required to produce a short electronic progress report annually and at completion. Please make sure that you will be able to supply an accurate account of the recruitment targets and numbers recruited for this Trust. Reporting is kept to a minimum; however, if you fail to supply the information requested, the Trust may withdraw approval.

## **Final Reports**

**It is a condition of approval that feedback is provided.** Near the end of your study the Research and Development Department will send you a short feedback form for completion. The Trust asks that you

- (i) complete the feedback form;
  - (ii) provide an easy read summary.
  - (iii) feedback to participants, who gave their time to help you with the study
  - (iv) feedback to the service which supported your research.
  - (v) Send details of any publications and conferences to the Research and Development Department.
- The feedback you provide may be published on the Trust intranet site to ensure findings are disseminated as widely as possible to stakeholders.

On behalf of this Trust, may I wish you every success with your study.

Yours sincerely

Dr I  
Medical Director

cc. I

L  
L

# **APPENDIX K**

**Example of demographic recording sheet**

DEMOGRAPHIC/MATCHING INFORMATION

1. (For researcher only) ID:

2. Name:

3. Age:

4. Gender:

5. Address including postcode (to receive notification in the event of winning the lucky prize-draw and/or details regarding the results of the study):

6. Would you like to be contacted regarding the results of this study? Please circle.

Yes/No

6. As far as you are aware, has your biological mother, father, full brothers/sisters or children ever been diagnosed or received treatment for a mental health difficulty (e.g. schizophrenia, manic depression/bipolar disorder).

Yes/No

If yes, please describe this briefly, identifying the difficulty if possible.

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

7. Please circle which one of the following categories best describes your ethnicity:

White British

Pakistani

Bangladeshi

Black Caribbean

Mixed White and Black Caribbean

Mixed Other

White Other

Indian

Black African

Other ethnic group

**8. Please indicate which qualifications you have received:**

CSE	Y/N
O Levels/GCSEs	Y/N
A Levels	Y/N
HNC/HND/NVQ	Y/N
University degree(s)	Y/N
Professional qualifications(s)	Y/N

**9. Please circle which one category best describes your marital status:**

Married

Living with partner

Divorced/separated

Widowed

Single

**10. Please circle which one category best describes your employment status:**

Employed

Not working on health grounds

Homemaker

Unemployed

Full-time student

Retired

**10.1 If you are currently unemployed but worked previously, how long have you been out of work?**

**10.2 Who is responsible for the accommodation in which you live (i.e. who owns it or pays the mortgage/rent?)**

**10.3 The following questions refer to the person you have identified in question 10.2. If this is you, please answer the questions based upon your own experience:**

**What is the person's current main job, or (if they are not working now) their last main job (if applicable).**

**What does the firm/organisation the person work(ed) for mainly make**

or do?.

**What was their main job?**

**What did they mainly do in their job?**

**Did they need any special qualifications/training to do the job? Please circle**

**Y/N**

**If 'yes', please specify:**

# **APPENDIX L**

## **Details of the National Statistics Socio-economic Classification system**

# 6 Category descriptions and operational issues

**6.1** In an employment relations approach, the important distinctions are those between:

- *employers*: who buy the labour of others and assume some degree of authority and control over them
- *self-employed (or 'own account') workers*: who neither buy labour nor sell their labour to others, and
- *employees*: who sell their labour to employers

Employees are further differentiated according to the employment relations of their occupation. See 2.9 for descriptions of the main forms of employment regulation distinguished by NS-SEC.

**6.2** NS-SEC has two types of operational category: functional and residual. (Residual category L14 can be considered optional.)

## **6.2a** Functional operational categories

### **L1** *Employers in large organisations*

*People who employ others (and so assume some degree of control over them) in enterprises employing 25 or more people, and who delegate some part of their managerial and entrepreneurial functions to salaried staff.*

Higher professionals who are also large employers are not allocated to L1 but to L3. This is because their status as professionals is more relevant in terms of employment relations than their position as an employer.

### **L2** *Higher managerial occupations*

*Positions in which there is a service relationship with the employer, and which involve general planning and supervision of operations on behalf of the employer.*

For certain managerial unit groups of SOC2000, the number of employees in an organisation can help to distinguish between higher managerial occupations in L2 and lower managerial occupations in L5. However, some managerial OUGs are wholly or primarily occupied by higher or lower managers so this does not always apply.

### **L3** *Higher professional occupations*

*Positions, whether occupied by employers, the self-employed or employees, that cover all types of higher professional work. As with L2, employees in these groups have a service relationship with their employer.*

#### **L3.1** *'Traditional' professional employees*

#### **L3.2** *'New' professional employees*

#### **L3.3** *'Traditional' self-employed professionals*

#### **L3.4** *'New' self-employed professionals*

Both here and in L4 (lower professional and higher technical occupations) 'traditional' refers to occupations regarded by SC and SEG as professional. 'New' refers to occupations not previously regarded as professional.

It is important to note that, for professionals, independent practice and salaried employment are often indistinguishable, and that true self-employment is difficult to identify.

An occupation that has been designated as professional is professional regardless of employment status. For example, a supervisor who is also a scientist is classified as a professional (in L3) and not as a supervisor (L6).

### **L4** *Lower professional and higher technical occupations*

*Positions, whether occupied by employers, the self-employed or employees, that cover lower professional and higher technical occupations. Employees in these groups have an attenuated form of the service relationship.*

#### **L4.1** *'Traditional' lower professional and higher technical employees*

#### **L4.2** *'New' lower professional and higher technical employees*

#### **L4.3** *'Traditional' self-employed lower professionals and higher technical*

#### **L4.4** *'New' self-employed lower professionals and higher technical*

Employees in category L4 share fewer of the conditions associated with the service relationship than those in L3.

The rules for allocating lower professional OUG/employment status combinations to NS-SEC are complicated. The employee relations approach holds that lower professional status takes precedence over small employer status but not over large employer status. Employers in small organisations who are in associate professional occupations are allocated to L4 rather than L8. But lower professionals who are also large employers are allocated to L1.

### **L5 Lower managerial occupations**

*Positions that have an attenuated form of service relationship. Employees in these groups generally plan and supervise operations on behalf of the employer under the direction of senior managers.*

These occupations share fewer of the conditions associated with the service relationship than those in L2.

As discussed under L2, the size rule is sometimes used as an indicator of the conceptual distinction between higher and lower managerial occupations. However, some OUGs are regarded as inherently lower managerial and allocated to L5 regardless of organisation size.

### **L6 Higher supervisory occupations**

*Positions (other than managerial) that have an attenuated form of the service relationship. These positions involve formal and immediate supervision of others engaged in the intermediate occupations included in L7.*

Typically, these higher supervisory positions are found in large bureaucratic organisations. Employees in these positions are supervising the work of others and so exert a degree of authority over them.

### **L7 Intermediate occupations**

*Positions in clerical, sales, service and intermediate technical occupations that do not involve general planning or supervisory powers. Positions in this group are intermediate in terms of employment regulation, that is, they combine elements of both the service relationship and the labour contract.*

**L7.1** *Intermediate clerical and administrative occupations*

**L7.2** *Intermediate sales and service occupations*

**L7.3** *Intermediate technical and auxiliary occupations*

**L7.4** *Intermediate engineering occupations*

Although positions in L7 have some features of the service relationship, they do not usually involve any exercise of authority (other than in applying standardised rules and procedures where discretion is minimal) and are subject to quite detailed bureaucratic regulation.

### **L8 Employers in small organisations**

*People, other than higher or lower professionals, who employ others and so assume some degree of control over them. These employers carry out all or most of the entrepreneurial and managerial functions of the enterprise and have fewer than 25 employees.*

**L8.1** *Employers in small organisations (non-professional)*

**L8.2** *Employers in small organisations (agriculture)*

Employers in small establishments, although they employ others, do not usually delegate most of their managerial or entrepreneurial functions to them. Small employers remain essentially in direct control of their enterprises.

The distinction between large and small employers is made by applying a size rule of 25 employees. It is likely that the majority of small employers have only one or two, or at most ten employees. Most people in this group are similar in many ways to the self-employed or own account workers in L9.

### **L9 Own account workers**

*Self-employed positions in which people are engaged in any (non-professional) trade, personal service, or semi-routine, routine or other occupation but have no employees other than family workers.*

**L9.1** *Own account workers (non-professional)*

**L9.2** *Own account workers (agriculture)*

Own account workers neither sell their labour to an employer nor buy the labour of others.

### **L10 Lower supervisory occupations**

*Positions with a modified form of labour contract, which cover occupations included in groups L11, L12 and L13, and involve formal and immediate supervision of others engaged in such occupations.*

Positions in L10 have different employment relations and conditions from those in L12 and L13 but similar conditions to those in L11. Operationally, these positions are distinguished most easily by having a job title ('foreman' or 'supervisor') from an OUG which, when combined with employee status, is allocated to L11, L12 or L13.



**L11 Lower technical occupations**

*Positions with a modified labour contract, in which employees are engaged in lower technical and related occupations.*

**L11.1 Lower technical craft occupations****L11.2 Lower technical process operative occupations**

Positions in this category are distinguished by having a modified labour contract. Employees are more likely than those in L12 or L13 to have some service elements in their employment relationship (for example, work autonomy). Operationally, job title does not help with the allocation of occupation to L11 as not all 'skilled' OUGs are included. Some are in L7 and others in L12 and L13.

**L12 Semi-routine occupations**

*Positions with a slightly modified labour contract, in which employees are engaged in semi-routine occupations.*

**L12.1 Semi-routine sales occupations****L12.2 Semi-routine service occupations****L12.3 Semi-routine technical occupations****L12.4 Semi-routine operative occupations****L12.5 Semi-routine agricultural occupations****L12.6 Semi-routine clerical occupations****L12.7 Semi-routine childcare occupations**

Employees in these positions are regulated by an only slightly modified labour contract typified by a short term and the direct exchange of money for effort. The category name 'semi-routine' is designed to indicate that, in employing this group, employers must slightly improve on the basic labour contract, that is, the work involved requires at least some element of employee discretion.

**L13 Routine occupations**

*Positions with a basic labour contract, in which employees are engaged in routine occupations.*

**L13.1 Routine sales and service occupations****L13.2 Routine production occupations****L13.3 Routine technical occupations****L13.4 Routine operative occupations****L13.5 Routine agricultural occupations**

These positions have the least need for employee discretion and employees are regulated by a basic labour contract.

**6.2b Residual operational categories****L14 Never worked and long-term unemployed**

*Positions that involve involuntary exclusion from the labour market, specifically (a) those who have never been in paid employment but would wish to be, and (b) those who have been unemployed for an extended period while still seeking or wanting work.*

**L14.1 Never worked****L14.2 Long-term unemployed**

Both the long-term unemployed and those who have never been in paid employment (although available for work) could be treated in employment relations terms as a separate category of those who are excluded from employment relations of any kind. Operationally, however, both these groups (the long-term unemployed and those who have never worked, although available for work) are difficult to define. The problems here cannot be separated from the more general ones concerning the non-employed population.

Those who have never worked but are seeking or would like paid work are allocated to operational category L14.1. There is an argument that the long-term unemployed should not be classified according to their last job but should be assigned to category L14.2 on the grounds that they are excluded from employment relations. Therefore, when NS-SEC is collapsed to an analytic variable, you should include the long-term unemployed with those who have never worked.

It is not possible to define the long-term unemployed in any hard and fast way. You will have to make your own decisions, depending on the purpose of your research. You may not want to implement L14 at all so that you exclude the 'never worked' from the analytic versions and classify all unemployed people according to their last main jobs. Alternatively, you may want to implement the class and use a six-month unemployment rule, relating to the maximum length of time for which Jobseekers' Allowance is paid. Or you might prefer to use a one- or even two-year unemployment rule. See Chapter 10: The questions to ask.

**L15 Full-time students**

*People over 16 who are engaged in full-time courses of study in secondary, tertiary or higher education institutions.*

Full-time students are recognised as a category in the full classification for reasons of completeness. Since many students will have had or still have paid occupations, you could classify them by current or last main job, although we would not usually expect them to be classified in this way. Conventionally,

where full-time students are included in analyses (for example, in research on education), they are normally allocated a position through their family household. See Chapter 10: The questions to ask.

#### **L16** *Occupations not stated or inadequately described*

This category is for cases where the occupational data requested in surveys and censuses are not given or are inadequate for classification purposes.

#### **L17** *Not classifiable for other reasons*

No matter what rules are devised, there will be some adults who cannot be allocated to an NS-SEC category. For example, the research may have been designed to exclude older people from employment questions. For completeness, you should include in L17 any people who cannot be allocated to another category.

### **6.3 The non-employed**

This term includes unemployed people (except the long-term unemployed and those who have never worked); retired people; those looking after a home; those on government employment or training schemes; and people who are sick or disabled. In order to improve population coverage, in most cases, the normal procedure is to classify these people according to their last main job. The chief exceptions to this rule are full-time students, the long-term unemployed and people who have never worked (see L14 and L15).

### **6.4 The armed forces**

Armed forces personnel are allocated to operational categories L2 Higher managerial occupations for SOC2000 OUG 1171 (officers); L6 Higher supervisory occupations for supervisors in OUG 3311 (NCOs and other ranks), and L7.3 Intermediate technical and auxiliary occupations for employees in OUG 3311.

Depending on the focus of your research and any comparability issues with the previous SECs, you can choose to exclude armed forces personnel from your analyses. If you do decide to exclude them, we recommend that you perform selection commands at the OUG level rather than on NS-SEC categories as other occupations are included in those operational categories.

# 7 Classes and collapses

**7.1** The number of classes you use will depend on both your analytic purposes and the quality of available data. Within the conceptual model, it is possible to have eight-, five- and three-class versions of NS-SEC. Table 3 shows the nested relationship between the different versions.

**7.2** The three-class version may be assumed to involve a form of hierarchy but none of the other versions can be regarded as ordinal scales. In particular, it is not appropriate to create an ordinal scale by combining the self-employed in Class 4 with the intermediate Class 3 because the self-employed are distinctive in their life chances and behaviour. We strongly recommend that you accept the theoretical and measurement principles of NS-SEC, take advantage of the conceptual base of the model for developing hypotheses linking it to outcomes of interest, and use appropriate analytic techniques for nominal data.

**7.3** You should also consider carefully whether to allocate those who have never worked and the long-term unemployed to semi-routine/routine and manual occupations respectively or keep them separate. For example, if you are doing health analyses, you would need to be very careful about how you define the long-term unemployed and those who have never worked, as including the permanently sick would clearly not be sensible. They should be classified on the basis of last main job and the long-term unemployed should include only those who are seeking or available for work. Of course, this may still leave some people who are permanently sick or disabled in the 'never worked' category, hence this warning.

**7.4** Although the name of the third class in the three-class version of NS-SEC is 'routine and manual occupations', NS-SEC does not perpetuate the manual/non-manual divide. Changes in the nature and structure of both industry and occupations have rendered this distinction outmoded and misleading.

**Table 3**  
**Eight-, five- and three-class versions**

eight classes		five classes	three classes*
1 Higher managerial and professional occupations	1.1 Large employers and higher managerial occupations 1.2 Higher professional occupations	1 Managerial and professional occupations	1 Managerial and professional occupations
2 Lower managerial and professional occupations			
3 Intermediate occupations		2 Intermediate occupations	2 Intermediate occupations
4 Small employers and own account workers		3 Small employers and own account workers	
5 Lower supervisory and technical occupations		4 Lower supervisory and technical occupations	3 Routine and manual occupations
6 Semi-routine occupations		5 Semi-routine and routine occupations	
7 Routine occupations		† -----	
8 Never worked and long-term unemployed		Never worked and long-term unemployed	† ----- Never worked and long-term unemployed

\* Three classes names revised 05.10.01.

† Presentation of 'Never worked and long-term unemployed' altered on Table 3 in the five- and three-class versions. This corresponds more closely to the cautionary notes in 7.2. Revised 14.01.04.

# **APPENDIX M**

## **Example of the Childhood Trauma Questionnaire**



Name: \_\_\_\_\_

Age: \_\_\_\_\_ Sex: \_\_\_\_\_

Ready Score®  
Answer Document

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

# **APPENDIX N**

## **Example of the Self-concept Clarity Scale**

Self-Concept Clarity Scale (SCCS; Campbell et al., 1996)

Please decide whether you agree or disagree with each statement below. Indicate the extent to which you agree or disagree by circling the appropriate number on the scale.

1. My beliefs about myself often conflict with one another.

1	2	3	4	5
strongly disagree	disagree	neither agree nor disagree	agree	strongly agree

2. On one day I might have one opinion of myself and on another day I might have a different opinion.

1	2	3	4	5
strongly disagree	disagree	neither agree nor disagree	agree	strongly agree

3. If I were asked to describe my personality, my description might end up being different from one day to another day.

1	2	3	4	5
strongly disagree	disagree	neither agree nor disagree	agree	strongly agree

4. My beliefs about myself seem to change very frequently.

1	2	3	4	5
strongly disagree	disagree	neither agree nor disagree	agree	strongly agree

5. When I think about the kind of person I have been in the past, I'm not sure what I was really like.

1	2	3	4	5
strongly disagree	disagree	neither agree nor disagree	agree	strongly agree

6. Sometimes I feel that I am not really the person that I appear to be.

1	2	3	4	5
strongly disagree	disagree	neither agree nor disagree	agree	strongly agree

7. I seldom experience conflict between the different aspects of my personality.

1	2	3	4	5
strongly disagree	disagree	neither agree nor disagree	agree	strongly agree

8. Sometimes I think I know other people better than I know myself.

1	2	3	4	5
strongly disagree	disagree	neither agree nor disagree	agree	strongly agree

9. I spend a lot of time wondering about what kind of person I really am.

1	2	3	4	5
strongly disagree	disagree	neither agree nor disagree	agree	strongly agree

10. Even if I wanted to, I don't think I could tell someone what I am really like.

1	2	3	4	5
strongly disagree	disagree	neither agree nor disagree	agree	strongly agree

11. In general, I have a clear sense of who I am and what I am.

1	2	3	4	5
strongly disagree	disagree	neither agree nor disagree	agree	strongly agree

12. It is often hard for me to make up my mind about things because I don't really know what I want.

1	2	3	4	5
strongly disagree	disagree	neither agree nor disagree	agree	strongly agree



# **APPENDIX O**

## **Example of the Psychosis Screening Questionnaire**

APPENDIX O

P. BEBBINGTON AND T. NAYANI

PSYCHOSIS SCREENING QUESTIONNAIRE (PSQ)

In this health survey we have to ask about a whole range of experiences. Some of these experiences are quite rare. However, I would be very obliged if you would bear with us and answer the questions I am going to ask you now.

Q1. Over the past year, have there been times when you felt very happy indeed without a break for days on end?

- |              |   |     |     |
|--------------|---|-----|-----|
| Yes .....    | 1 | →   | (a) |
| Unsure ..... | 2 | } → | Q2  |
| No .....     | 3 |     |     |

(a) Was there an obvious reason for this?

- |              |   |     |     |
|--------------|---|-----|-----|
| Yes .....    | 1 | } → | Q2  |
| Unsure ..... | 2 |     |     |
| No .....     | 3 | →   | (b) |

(b) Did your relatives or friends think it was strange or complain about it?

- |              |   |     |                               |
|--------------|---|-----|-------------------------------|
| Yes .....    | 1 | →   | Screen Positive, End Schedule |
| Unsure ..... | 2 | } → | Q2                            |
| No .....     | 3 |     |                               |

Q2. Over the past year, have you ever felt that your thoughts were directly interfered with or controlled by some outside force or person?

- |              |   |     |     |
|--------------|---|-----|-----|
| Yes .....    | 1 | →   | (a) |
| Unsure ..... | 2 | } → | Q3  |
| No .....     | 3 |     |     |

(a) Did this come about in a way that many people would find hard to believe, for instance, through telepathy?

- |              |   |     |                               |
|--------------|---|-----|-------------------------------|
| Yes .....    | 1 | →   | Screen Positive, End Schedule |
| Unsure ..... | 2 | } → | Q3                            |
| No .....     | 3 |     |                               |

Q3. Over the past year, have there been times when you felt that people were against you?

- |              |   |     |     |
|--------------|---|-----|-----|
| Yes .....    | 1 | →   | (a) |
| Unsure ..... | 2 | } → | Q4  |
| No .....     | 3 |     |     |

PSYCHOSIS SCREENING QUESTIONNAIRE

(a) Have there been times when you felt that people were deliberately acting to harm you or your interests?

Yes .....	1	→	(b)
Unsure .....	2	} →	Q4
No .....	3		

(b) Have there been times you felt that a group of people was plotting to cause you serious harm or injury?

Yes .....	1	→	Screen Positive, End Schedule
Unsure .....	2	} →	Q4
No .....	3		

Q4. Over the past year, have there been times when you felt that something strange was going on?

Yes .....	1	→	(a)
Unsure .....	2	} →	Q5
No .....	3		

(a) Did you feel it was so strange that other people would find it very hard to believe?

Yes .....	1	→	Screen Positive, End Schedule
Unsure .....	2	} →	Q5
No .....	3		

Q5. Over the past year, have there been times when you heard or saw things that other people couldn't?

Yes .....	1	→	(a)
Unsure .....	2	} →	End Schedule
No .....	3		

(a) Did you at any time hear voices saying quite a few words or sentences when there was no one around that might account for it?

Yes .....	1	→	Screen Positive, End Schedule
Unsure .....	2	} →	End Schedule
No .....	3		

experiences are questions I am

(a)

Q2

Q2

(b)

Screen Positive, End Schedule

Q2

(a)

Q3

Screen Positive, End Schedule

Q3

(a)

Q4

# **APPENDIX P**

## **Example of the Dissociative Experiences Scale II**

# Dissociative Experiences Scale II

## (DES II)

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Age: \_\_\_\_\_

Sex: M F \_\_\_\_\_

This questionnaire consists of 28 questions about experiences that you may have in your daily life. We are interested in how often you have these experiences. It is important, however, that your answers show how often these experiences happen to you when you are not under the influence of alcohol or drugs. To answer the questions, please determine to what degree the experience described in the question applies to you and circle the number to show what percentage of the time you have the experience.

Example:

0% 10 20 30 40 50 60 70 80 90 100%  
(never) (always)

- 
1. Some people have the experience of driving or riding in a car or bus or subway and suddenly realizing that they don't remember what has happened during all or part of the trip. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

2. Some people find that sometimes they are listening to someone talk and they suddenly realize that they did not hear part or all of what was said. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

3. Some people have the experience of finding themselves in a place and having no idea how they got there. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

4. Some people have the experience of finding themselves dressed in clothes that they don't remember putting on. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

5. Some people have the experience of finding new things among their belongings that they do not remember buying. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%



6. Some people sometimes find that they are approached by people who they do not know who call them by another name or insist that they have met them before. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

7. Some people sometimes have the experience of feeling as though they are standing next to themselves or watching themselves do something and they actually see themselves as if they were looking at another person. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

8. Some people are told that they sometimes do not recognize friends or family members. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

9. Some people find that they have no memory for some important events in their lives (for example, a wedding or graduation). Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

10. Some people have the experience of being accused of lying when they do not think that they have lied. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

11. Some people have the experience of looking in a mirror and not recognizing themselves. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

12. Some people have the experience of feeling that other people, objects, and the world around them are not real. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

13. Some people have the experience of feeling that their body does not seem to belong to them. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

14. Some people have the experience of sometimes remembering a past event so vividly that they feel as if they were reliving that event. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%



15. Some people have the experience of not being sure whether things that they remember happening really did happen or whether they just dreamed them. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

16. Some people have the experience of being in a familiar place but finding it strange and unfamiliar. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

17. Some people find that when they are watching television or a movie they become so absorbed in the story that they are unaware of other events happening around them. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

18. Some people find that they become so involved in a fantasy or daydream that it feels as though it were really happening to them. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

19. Some people find that they sometimes are able to ignore pain. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

20. Some people find that they sometimes sit staring off into space, thinking of nothing, and are not aware of the passage of time. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

21. Some people sometimes find that when they are alone they talk out loud to themselves. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

22. Some people find that in one situation they may act so differently compared with another situation that they feel almost as if they were two different people. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

23. Some people sometimes find that in certain situations they are able to do things with amazing ease and spontaneity that would usually be difficult for them (for example, sports, work, social situations, etc.). Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%



24. Some people sometimes find that they cannot remember whether they have done something or have just thought about doing that thing (for example, not knowing whether they have mailed a letter or have just thought about mailing it). Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

25. Some people find evidence that they have done things that they do not remember doing. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

26. Some people sometimes find writings, drawings, or notes among their belongings that they must have done but cannot remember doing. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

27. Some people sometimes find that they hear voices inside their head that tell them to do things or comment on things that they are doing. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

28. Some people sometimes feel as if they are looking at the world through a fog so that people and objects appear far away or unclear. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

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# **APPENDIX Q**

## **Data Screening analysis**

## APPENDIX Q

### Assessing Normality and Parametric Assumptions

Several variables across the clinical and non-groups showed evidence of skewness and kurtosis and visual inspection also suggested non-normal distributions. Consequently, the Shapiro-Wilk statistic was used for each variable to establish any significant differences from normal distributions. For the clinical group, the DES Mean ( $W(29) = 0.90, p < .05$ ), CTQ Emotional Abuse ( $W(29) = 0.86, p < .05$ ), CTQ Physical Abuse ( $W(29) = 0.66, p < .001$ ), CTQ Sexual Abuse ( $W(29) = 0.38, p < .001$ ), CTQ Physical Neglect ( $W(29) = 0.66, p < .001$ ), and CTQ Total ( $W(29) = 0.85, p < .05$ ) were significantly non-normal. An examination of box plots revealed the presence of outliers on these variables which appeared to account for some of the non-normal distribution. Closer inspection revealed these to be valid responses, and as such they were retained for use in the statistical analyses.

For the non-clinical group, Age ( $W(31) = 0.89, p < .05$ ), DES scores ( $W(31) = 0.75, p < .001$ ), CTQ Emotional Abuse ( $W(31) = 0.83, p < .001$ ), CTQ Physical Abuse ( $W(31) = 0.46, p < .001$ ), CTQ Sexual Abuse ( $W(31) = 0.18, p < .001$ ), CTQ Emotional Neglect ( $W(31) = 0.78, p < .001$ ), CTQ Physical Neglect ( $W(31) = 0.51, p < .001$ ), CTQ Total ( $W(31) = 0.80, p < .001$ ) and SCCS total scores ( $W(31) = 0.93, p < .05$ ) were significantly non-normal. An examination of box plots revealed the presence of outliers on DES Mean, CTQ Physical Abuse, CTQ Sexual Abuse, CTQ Emotional Neglect, CTQ Physical Neglect, and CTQ Total which appeared to account for some of the non-normal distribution on these variables. Closer inspections revealed these to be valid responses, and as such they were also retained for use in the statistical analyses.

Homogeneity of variance was assessed via Levene's test. DES score variance was significantly different across clinical and non-clinical groups ( $F(1, 58) = 6.12, p < .05$ ). CTQ emotional abuse scores also differed significantly in terms of variance across the two groups ( $F(1, 58) = 15.23, p < .001$ ), as did CTQ Physical abuse scores ( $F(1, 58) = 16.02, p < .001$ ), CTQ Sexual abuse scores ( $F(1, 58) = 6.88, p < .05$ ) and total CTQ scores ( $F(1, 58) = 7.31, p < .01$ ). Variance was equal across both groups for CTQ emotional neglect scores ( $F(1, 58) = 1.99, p > .05$ ), physical neglect ( $F(1, 58) = 0.91, p > .05$ ) and self-concept clarity scores ( $F(1, 58) = 3.44, p > .05$ ).

# **APPENDIX R**

**Table showing CTQ subscale scores across level of  
minimisation/denial**

## APPENDIX R

**Table 1:** Median CTQ subscale scores across clinical and non-clinical groups, according to minimisation/denial subscale score (CTQM/D)

CTQ Subscale	CTQM/D Score							
	0		1		2		3	
	Clinical N = 29	Non-clinical N = 31	Clinical N = 29	Non-clinical N = 31	Clinical N = 29	Non-clinical N = 31	Clinical N = 29	Non-clinical N = 31
Emotional Abuse	9.50	8.00	7.50	5.50	7.00	5.00	5.00	7.50
Physical Abuse	6.00	5.00	6.50	5.00	5.00	5.00	5.00	5.00
Sexual Abuse	5.00	5.00	5.50	5.00	5.00	5.00	5.00	5.00
Emotional Neglect	13.00	7.00	5.50	7.50	6.00	5.00	5.00	5.50
Physical Neglect	6.50	5.00	5.50	5.00	5.50	5.00	5.00	5.00
CTQ Total	40.50	31.00	30.50	27.50	28.50	25.50	25.00	28.00

# **APPENDIX S**

**Analysis of hypothesis four excluding participants  
scoring above cut-off on CTQM/D**

## APPENDIX S

### Analysis of hypothesis four excluding participants scoring above cut-off on CTQM/D

**Table 1: Aggregate sample**

	CTQ subscale					
	Emotional Abuse	Physical Abuse	Sexual Abuse	Emotional Neglect	Physical Neglect	CTQ Total
DES-II	.602**	.736***	.544***	.358*	.400**	.633***

\*  $p < .05$     \*\*  $p < .01$     \*\*\*  $p < .001$

**Table 2: Clinical sample**

	CTQ subscale					
	Emotional Abuse	Physical Abuse	Sexual Abuse	Emotional Neglect	Physical Neglect	CTQ Total
DES-II	.579**	.538**	.419*	.384*	.629**	.704***

\*  $p < .05$     \*\*  $p < .01$     \*\*\*  $p < .001$

# **APPENDIX T**

**Analysis of hypothesis four excluding DES-II item**

**27**



## APPENDIX T

### Analysis of hypothesis four excluding DES-II item 27

**Table 1: Aggregate sample**

	CTQ subscale					
	Emotional	Physical	Sexual	Emotional	Physical	CTQ
	Abuse	Abuse	Abuse	Neglect	Neglect	Total
DES-II REVISED	.440***	.329***	.292*	.320**	.454***	.424***

\*  $p < .05$     \*\*  $p < .01$     \*\*\*  $p < .001$

**Table 2: Clinical sample**

	CTQ subscale					
	Emotional	Physical	Sexual	Emotional	Physical	CTQ
	Abuse	Abuse	Abuse	Neglect	Neglect	Total
DES-II REVISED	.505**	.336*	.216	.389*	.538**	.565**

\*  $p < .05$     \*\*  $p < .01$     \*\*\*  $p < .001$

APPENDIX T

Analysis of hypothesis four excluding DES-II item 27, also excluding participants scoring above cut-off on CTQM/D

**Table 3: Aggregate sample**

	CTQ subscale					
	Emotional	Physical	Sexual	Emotional	Physical	CTQ
	Abuse	Abuse	Abuse	Neglect	Neglect	Total
DES-II REVISED	.422**	.476**	.379*	.393**	.480**	.516**

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

**Table 4: Clinical sample**

	CTQ subscale					
	Emotional	Physical	Sexual	Emotional	Physical	CTQ
	Abuse	Abuse	Abuse	Neglect	Neglect	Total
DES-II REVISED	.582**	.539**	.419*	.398*	.617**	.712***

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

# **APPENDIX U**

**Analysis of hypothesis five excluding participants  
scoring above cut-off on CTQ/MD**

APPENDIX U

Analysis of hypothesis five excluding participants scoring above cut-off on CTQ/MD

**Table 1: Aggregate sample**

	CTQ subscale					
	Emotional	Physical	Sexual	Emotional	Physical	CTQ
	Abuse	Abuse	Abuse	Neglect	Neglect	Total
SCCS	-.592***	-.323*	-.304*	-.554***	-.544***	-.646***

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

**Table 2: Clinical sample**

	CTQ Subscale					
	Emotional	Physical	Sexual	Emotional	Physical	CTQ
	Abuse	Abuse	Abuse	Neglect	Neglect	Total
SCCS	-.441*	-.198	-.214	-.171	-.422*	-.424*

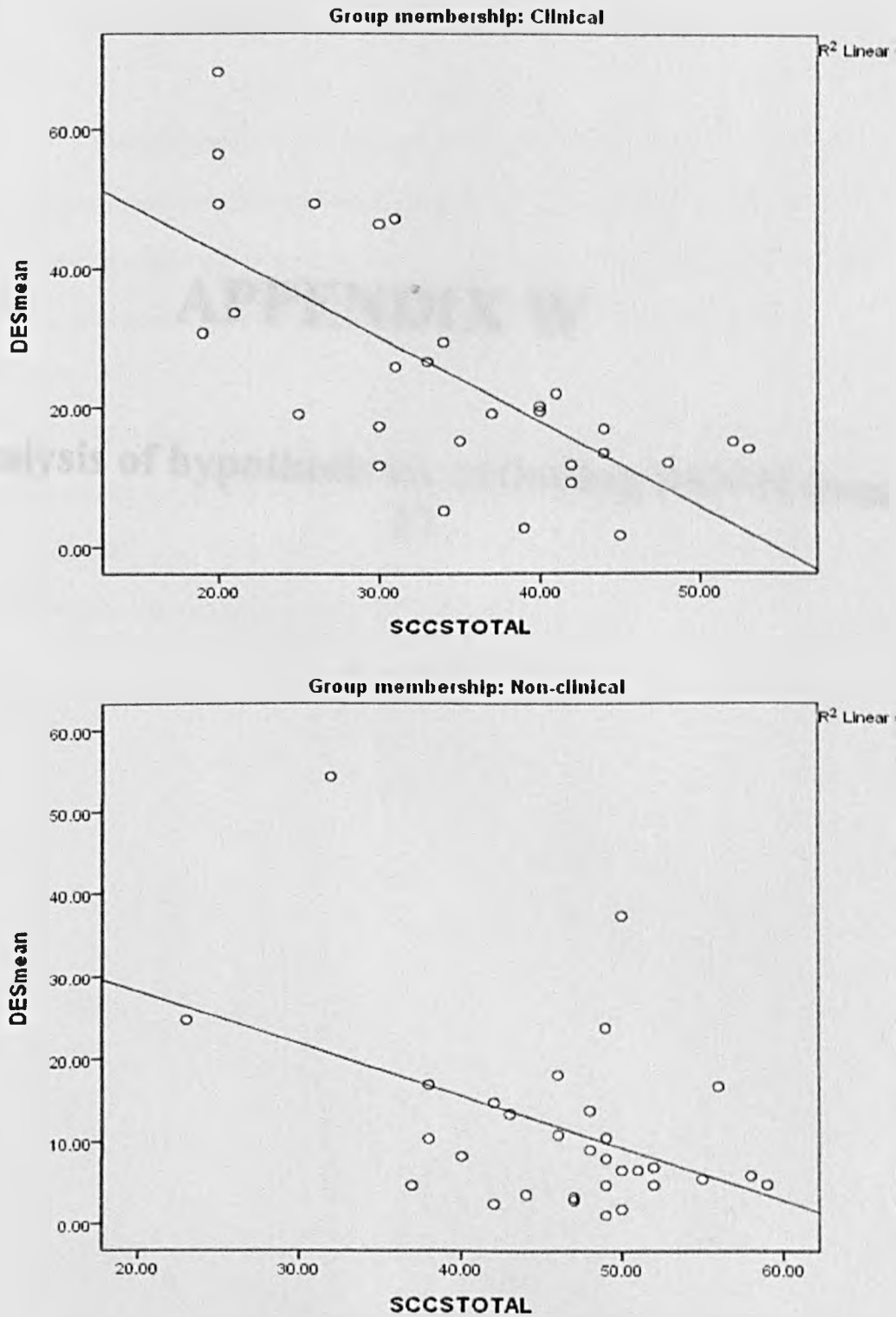
*Note: Correlation derived from one-tailed Spearman's rho*

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

## **APPENDIX V**

**Scatterplots showing relationships between SCCS  
and DES-II across clinical and non-clinical groups**

**Scatterplots showing relationships between SCCS and DES-II across clinical and non-clinical groups.**



**Figure 1:** Scatterplots showing restricted range of scores on the DES-II and SCCS in the non-clinical sample as compared to the clinical group.

# **APPENDIX W**

**Analysis of hypothesis six excluding DES-II item**

**27**

Analysis of hypothesis six excluding DES-II item 27

The hypothesis that self-concept clarity scores and DES-II (revised) scores would be negatively correlated was investigated using a one-tailed Spearman's correlation coefficient. Results indicated a significant negative relationship between these two measures ( $r_s = -.604$ ,  $p < .001$ ,  $R_s^2 = .36$ ) within the aggregate sample.

When broken down by group, clinical participants' SCCS and DES-II (revised) scores retained a significant negative relationship ( $r_s = -.710$ ,  $p < .001$ ,  $R_s^2 = .50$ ); in the non-clinical group, there appeared to be a trend towards a negative correlation, although this did not reach statistical significance ( $r_s = -.280$ ,  $p = .063$ ).



# **APPENDIX X**

## **Testing assumptions for logistic regression**

## APPENDIX X

### TESTING ASSUMPTIONS FOR LOGISTIC REGRESSION

The assumption of linearity in the logit was examined via the Box-Tidwell approach (Hosmer & Lemeshow, 2000). Significant results ( $p < .05$ ) suggested that CTQ physical neglect scores, emotional abuse and DES scores failed to meet this assumption. As suggested by Tabachnik and Fidell (2007) DES and emotional abuse scores were subject to logarithmic transformation, following which this did not reach statistical significance ( $p > .05$ ) on the Box-Tidwell. However, numerous transformations did not lead to the assumption of linearity in the logit being met for CTQ physical neglect scores. Following Tabachnick and Fidell (2007), and considering the number of comparisons made (i.e. likelihood of a Type I error), physical neglect scores were retained untransformed for use in the meditational analysis.

Residuals were examined to determine the presence of influential cases within the logistic regression models. Three cases were identified which showed studentized residuals above two. These cases were inspected and no reason was found to justify their removal from the analysis (Field, 2009).

Multicollinearity was assessed via inspection of tolerance values and variance inflation factors (VIFs). Tolerance values were greater than 0.1 across all variables (range = .307 to .531), and VIF values were all below 10, thereby suggesting no issues of multicollinearity. However, differences between eigenvalues and an examination of variance proportions suggested possible collinearity between CTQ subscales. This issue was addressed by examining each CTQ subscale individually as a predictor within the meditational analysis, following investigation of a general measure of childhood trauma (CTQ total). This was felt to be appropriate due to the limited power of the

current study (i.e. resulted in case-to-variable ratio of 20:1). Furthermore, within the current study CTQ total scores showed high levels of internal reliability.