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UNIVERSITY OF SOUTHAMPTON

FACULTY OF SOCIAL AND HUMAN SCIENCES

School of Psychology

**The Relationship of Childhood Bullying and Paranoid Thinking in a Clinical
Population: The Role of Mediators**

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Thesis submitted in partial fulfilment of the degree of Doctor of Clinical Psychology

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The Association of Childhood Bullying and Paranoid Thinking

Abstract

A wealth of research evidence has been accumulating over the last two decades, highlighting the association of childhood trauma and psychosis. The literature review evaluates empirical evidence and builds upon the previous literature reviews in this area. In addition, the literature review examines the theoretical bases and the underlying psychological factors that contribute to the relationship between childhood trauma and psychosis. It concluded that despite a large body of literature on the association between childhood trauma and psychosis, there is a paucity of empirical research which investigates other forms of childhood trauma, such as, bullying. The empirical paper investigates whether ‘anxiety’, ‘depression’, ‘interpersonal sensitivity’, and/or negative beliefs would mediate the relationship between childhood bullying and paranoid thinking in people with psychosis. Data were collected through self-report measures on demographics, childhood bullying (‘direct aggression’, ‘indirect aggression’), ‘anxiety’, ‘depression’, ‘interpersonal sensitivity’, ‘other-self negative beliefs’, ‘self-self negative beliefs’, ‘self-other negative beliefs’, and paranoid thinking (‘ideas of social reference’, ‘persecution’). A significant association was found between childhood bullying and paranoid thinking. ‘Interpersonal sensitivity’ was found to mediate the relationship between childhood bullying (‘direct aggression’, ‘indirect aggression’) and ‘ideas of social reference’, indicating the importance of the Rejection Sensitivity Model in the understanding of paranoid thinking in victims of childhood bullying. Clinical and research implications, as well as, directions for future research are highlighted.

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The Association of Childhood Trauma and Psychosis in Adulthood

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Abstract

A wealth of research evidence has been accumulating over the last two decades, highlighting the association of childhood trauma and psychosis. However, research has focused more on investigating the prevalence of childhood trauma in individuals with psychosis and not much consideration has been given to the role of underlying processes which may mediate this association.

Following a comprehensive literature review search, 32 studies were identified which fulfilled the search criteria and investigated the association between childhood trauma and psychosis in adulthood. This narrative literature review evaluates empirical evidence generated over the last two decades and builds upon the previous literature reviews in this area. In addition to the discussion of the prevalence of childhood trauma in psychosis, theoretical bases, causality, mediation, consideration has been given to the controversial and debatable issue of asking about childhood trauma from clients with psychosis.

The methodological limitations of the literature reviewed, as well as directions for future research have been offered. As the association of childhood trauma and psychosis can have far reaching implications, both in terms of assessment and intervention, these have been discussed in the final part of this review.

Key words

Childhood trauma, psychosis, mediators.

1. Introduction

Childhood trauma has long been recognised as an important etiological factor in the development of mental health difficulties in adulthood. An extensive body of research has been carried out within this field, which has primarily focused on anxiety, mood disorders, eating disorders and substance abuse (Gibb, Chelminski, & Zimmerman, 2007; Lu, Mueser, Rosenberg, & Jankowski, 2008; Kendler et al., 2000; Swanson et al., 2003; van Gerko, Huges, Hamill, & Walker, 2005). It is only recently that the relationship of childhood trauma and psychosis is becoming a focus of research and is still very much in its infancy (Hammersley, Read, Woodall, & Dillon, 2007).

Previous studies have demonstrated an association between traumatic events in childhood and the development of psychosis in adulthood (Bebbington et al., 2011; Janssen et al., 2004; Read et al., 2003; Read et al., 2005). These studies conducted previously have mainly focused on trauma related to physical and sexual abuse in children, without giving much consideration to the psychological consequences of other forms of trauma, such as, childhood emotional abuse, including bullying, and neglect (Bebbington et al., 2011; Kim, Kasper, Noh, & Nam, 2006; Read et al., 2003; Shevlin, Dorahy, & Adamson, 2007; Spataro, Mullen, Burgess, Wells, & Moss, 2004). However, a large majority of these studies have been conducted using the general, nonclinical population and mainly investigated psychotic symptoms within this population (Freeman & Fowler, 2009; Schreier et al., 2009). Despite this emerging interest in trauma – psychosis research, there have been only a few well designed large scale empirical studies exploring this construct (Read et al., 2005).

1.1 Overview of Childhood Trauma

The terms childhood trauma and childhood abuse have been used interchangeably in literature and a considerable debate and disagreement exists on the definition of childhood abuse and trauma (Kennerley, 2000). In previous research, different researchers have defined this construct very differently. Everett and Gallop (2001) have also pointed out this lack of consistency in defining childhood abuse and trauma. Despite the controversies surrounding the definitional issues, childhood abuse has been categorised mainly into four types: childhood sexual abuse, childhood physical abuse, Childhood emotional abuse, and childhood neglect.

The World Health Organisation (WHO) has defined childhood maltreatment as:

“All forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child’s health, survival, development or dignity in the context of a relationship of responsibility, trust, or power”.

(Butchart, Putney, Furniss & Kahane, 2006, p.59)

The above mentioned aspects of childhood abuse have been included and defined in the guideline, *Working Together to Safeguard Children* (DCSF, 2010).

The terms ‘emotional abuse’ and psychological abuse have been used interchangeably. Briere (1992) classified psychological abuse into eight types, depending on the types of parent or caregiver behaviours. It is interesting to note the lack of importance given to the types of emotional abuse outside of the house. Traditionally, policy and research has mainly focused on the abuse or neglect by

parents or guardians and it is important to recognise other perpetrators of childhood abuse (NSPCC, 2011). Although, social discrimination, racism, sexism, extreme poverty and homelessness have been outlined as some of the less studied areas of child maltreatment (Briere, 1992), other forms of emotional abuse, such as, childhood bullying, has been largely ignored.

1.2 Prevalence of Childhood Trauma

The National Society for the Prevention of Cruelty to Children published a report in 2011 to present findings on the prevalence and impact on childhood abuse (Radford et al., 2011). Abuse by a parent or guardian as well as by a non-resident adult was covered in this report. In this report physical abuse, sexual abuse, emotional abuse, and neglect, were collectively described as maltreatment. The study showed that 5% of under 11s, 13.4% of 11-17s and 14.5% of 18-24s had experienced severe maltreatment by a parent or guardian. All types of maltreatment by a parent or guardian were found to be linked with poorer emotional well-being of children. Childhood maltreatment by a non-resident was found to be less prevalent than maltreatment by parents or guardians. The study showed that 2.3% of under 11s, 7.8% of 11-17s and 12.8% of 18-24s had experienced maltreatment by a non-resident adult, at some point during childhood. Overall, 1 in 5 11-17s (18.6%), 1 in 4 18-24s (25.3%) and 1 in 7 (5.9%) under 11s had experienced some form of severe maltreatment. The findings suggested that there was an increase in the prevalence of childhood maltreatment compared to an earlier study carried out by May-Chahal and Cawson (2005).

Childhood sexual abuse has been studied in greater detail compared to physical abuse, emotional abuse and neglect (Cawson & May-Chahal, 2005; Everett & Gallop, 2001). Although majority of studies are interested more in one particular type of childhood abuse over the other, this can pose difficulties in estimating true prevalence rates as in majority of cases, children are exposed to more than one type of abuse. According to Ney, Fung, and Wickett (1994) only 5% of children had experienced one particular type of abuse. There is a growing body of research which demonstrates that different types of abuse do not occur independently of each other and a significant number of individuals experience more than one type of abuse during childhood (Higgins & McCabe, 2000; Ney et al., 1994).

1.3 Overview of Psychosis

The term psychosis is often used to describe a wide range of experiences including, delusions, hallucinations, confused thinking and disorganised behaviour. Bentall (2003) has given a formal definition of psychosis. According to this definition, psychosis refers to severe psychiatric disorders in which the individual is out of touch with reality. Bentall noted that in practice this means disorders in which the individual experiences delusions and/or hallucinations.

According to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; 1994), a number of symptoms are experienced by people with psychosis, including delusions, hallucinations, disorganised speech (e.g. frequent derailment or incoherence), grossly disorganised or catatonic behaviour, and negative symptoms which include flattening of affect, poverty of speech, or lack of motivation.

These symptoms are outlined and measured by scales such as the Positive and Negative Syndrome Scale (PANSS; Kay, Fiszbein, & Opler, 1987), Scale for the Assessment of Positive Symptoms (SAPS; Andreasen, 1984a), and Scale for the Assessment of Negative Symptoms (SANS; Andreasen, 1984b).

2. Aims and Scope of the Literature Review

There is a huge body of literature demonstrating an association of childhood abuse and psychosis. The primary aim of this narrative literature review was to focus on studies that have explored the association between childhood trauma and psychosis. It aims to advance our understanding of the underlying variables or mediating factors which could explain the association between childhood trauma and development of psychosis in adulthood. This review will introduce up to date empirical research and build upon and strengthen the previous reviews, especially by Read et al. (2005). Furthermore, it aims to identify gaps in previous research and literature and gives recommendations for the future direction of research in this area.

2.1 Literature Search Strategy

In order to identify relevant literature, the following electronic databases were searched: CINAHL, MEDLINE, PsychINFO and Web of Science. The terms included in the searches were: (childhood abuse) and (psychosis). The search aimed to locate peer reviewed studies published in English language, over the past 20 years. In

addition, reference sections of relevant articles were scrutinised to identify further literature.

The inclusion criteria were liberal. All studies which focused specifically on childhood trauma (i.e., physical abuse, sexual abuse, emotional abuse and neglect) and the development of psychosis in adulthood were included. All types of papers, including empirical papers, review articles, and theoretical papers were included in the review. Studies which specifically focused on childhood trauma and PTSD were not included. In addition, studies which investigated psychosis in childhood were excluded from the literature review. A total of 32 studies fulfilled the criteria and included in this narrative literature review.

2.2 Previous Literature Reviews

Manning and Stickley (2009) have presented the most recent critical review of the literature on the association between childhood abuse and psychosis. However, this review was not restricted to psychosis and also included specific diagnostic groups assumed to have ‘psychotic element’, such as, schizophrenia spectrum disorders, major depressive disorders, dissociative identity disorders and Post Traumatic Stress Disorder (PTSD). PTSD and psychosis were viewed to exist on a spectrum. Evidence was presented to demonstrate a link between trauma exposure, psychosis, and PTSD. Several explanations of this link were explored, including i) a causal relationship where trauma leading to PTSD and psychosis; ii) PTSD developing after psychosis due to additional traumatic life experiences; iii) Psychosis presenting as comorbid with PTSD, resulting in a poor prognosis. Several limitations exist in this review.

Although, the term ‘child abuse’ was used to refer to physical abuse, sexual abuse, emotional abuse, and neglect, studies were not differentiated or and were grouped together under the umbrella term of ‘child abuse’. This did not afford the opportunity to take into consideration whether or not a particular type of child abuse is related more to the development of psychosis in adulthood.

A possibility of a causal relationship between childhood abuse and psychosis was suggested in this review. As all the individuals who experience childhood abuse do not develop psychosis, individual differences to reactions to trauma were explained by factors such as resilience (Heller, Larrieu, D’Imperio, & Boris, 1999; McGloin & Widom, 2001). The resiliency model proposes that the psychological outcome to trauma is determined by individual characteristics, social environment, and how the individual understands and deals with such adverse experiences (Green, Wilson, & Lindy, 1985).

The review concluded that mediating factors may play a role in increasing the severity of psychotic symptoms and recommendations for future research included controlling for possible mediating factors. It is interesting to note here that there is a paucity of research evidence available on the identification of factors which mediate the association of childhood abuse and development of psychosis in adulthood. Therefore, it is important to carry out studies to first identify the mediating variables, before controlling them. The authors called for more well-designed large scale studies investigating childhood abuse and psychosis.

Prior to the review by Manning and Stickley (2009), Read and his colleagues (2005) published an important and comprehensive empirical review of literature addressing the relationship of childhood trauma to psychosis and schizophrenia. Based on the

reviews, the authors concluded that a high prevalence of childhood trauma is found in people with psychosis. A large number of cross-sectional studies and some longitudinal population based studies were included in the review. Some of the evidence presented was based on cross-sectional studies which did not employ adequate control groups. The authors claimed that the evidence reviewed showed that *“child abuse is a causal factor for psychosis and schizophrenia”* (p.330). However, this claim remains controversial and contestable (Morgan & Fisher, 2007). The controversy around the causality issue was also highlighted in another review of literature by Bendall, Jackson, Hulbert, and McGorry (2008) which discussed that the methodological limitations in the studies reviewed by Read et al. (2005) makes it difficult to accept the claim that childhood trauma is a causal factor for psychosis.

2.3 Studies Reviewed

Table 1: Studies examining the association of Childhood Trauma and Psychosis

Authors	Participants	Research Variable(s)	Design	Research Measures	Summary of Results
Aas et al. (2011)	A sample of 138 subjects with first-episode psychosis and 138 geographically matched controls	Childhood trauma Cognitive function First-episode psychosis	Retrospective	Childhood Experience of Care and Abuse Questionnaire Psychosis Screening Questionnaire Neuropsychological test battery	A history of childhood trauma was associated with poor cognitive performance, especially in affective psychosis and in males. No such association was found among females with first-episode psychosis or controls
Aleman, et al. (2011)	533 general population subjects	Childhood abuse BDNF-Val66Met polymorphism gene Psychotic-like experiences	Retrospective	Childhood Trauma Questionnaire Schizotypy Personality Questionnaire-Brief State-Trait Anxiety Inventory The Community Assessment of Psychic Experiences Genomic DNA	Subjects who had experienced childhood abuse were more likely to report psychotic-like symptoms. This association was moderated by the gene BDNF-Val66Met polymorphism
Alvarez et al. (2011)	A sample of 102 subjects with schizophrenia, bipolar disorder, or schizoaffective disorder	Childhood trauma Severe mental disorders	Retrospective	Brief Psychotic Relative Scale Traumatic life Events Questionnaire Distressing Events Questionnaire	Almost half of the subjects had experienced some form of childhood abuse, showing a strong relationship between childhood abuse and severity of psychosis. Hospital admissions were significantly high in those with childhood psychological abuse. Subjects with childhood sexual abuse were more likely to attempt suicide.

Authors	Participants	Research Variable(s)	Design	Research Measures	Summary of Results
Bebbington et al.(2004)	A sample of 8580 adults drawn from the British National Survey of Psychiatric Morbidity	Psychosis Adverse early victimisation experiences Mood as a mediator	Retrospective	Schedule for Assessment in Neuropsychiatry Clinical Interview Cards with adverse experiences written on them	There was a higher rate of trauma, especially sexual abuse in subjects with psychosis compared with other psychiatric disorders. Mood was a mediator
Bebbington et al. (2011)	General population sample of 7353	Psychosis Childhood sexual abuse Anxiety Depression Cannabis use Revictimisation in adulthood	Retrospective Cross-sectional survey	Clinical interview Computer-assisted self-interview Schedules for Clinical Assessment in Neuropsychiatry Clinical Interview Schedule-Revised	Strong association was found between childhood sexual abuse and psychosis. This association was partially mediated by anxiety and depression but not heavy cannabis use or revictimisation in adulthood
Bechdolf et al. (2010)	A sample of 92 subjects with psychotic symptoms attending a public mental health clinic for ultra high risk for developing psychotic disorder	Childhood trauma Conversion to psychotic disorder	Retrospective	The Comprehensive Assessment of At-Risk Mental States General Trauma Questionnaire	A high prevalence of earlier traumatic experiences was reported in subjects at 'ultra-high risk' of psychosis. Childhood sexual trauma may predict the onset of psychotic disorder

Authors	Participants	Research Variable(s)	Design	Research Measures	Summary of Results
Cutajar et al. (2010)	A sample of 2759 individuals who had experienced childhood sexual abuse and had subsequent contacts with mental health services. Compared with a community-based matched control group	Rates of schizophrenia and other psychotic disorders	Prospective	Records of Police Surgeon's Office Records of the Victorian Institute of Forensic Medicine Victorian Psychiatric Case Register	Rates of psychosis in general and schizophrenic disorders in particular were significantly higher among childhood sexual abuse victims compared with the controls
Fisher et al. (2009)	181 subjects with first – episode psychosis 246 subjects in control group	Gender differences Childhood sexual and physical abuse Psychosis	Retrospective	Psychosis Screening Questionnaire Childhood Experiences of Care Abuse Questionnaire Medical Research Council Socio-demographic Schedule The Family Interview for Genetic Studies Schedules for Clinical Assessment in Neuropsychiatry	Women in the cases group were significantly more likely to experience physical or sexual abuse compared to controls. The effect of physical abuse stronger than sexual abuse in women. No association found in men
Freeman & Fowler (2009)	200 subjects from the general population	Childhood trauma Anxiety Mediation Psychosis-like experiences	Retrospective	Life Stressor Checklist Green et al. Paranoid Thoughts Scale (Part-B) Cardiff Anomalous Perceptions Scale Wechsler Abbreviated Scale of Intelligence Depression Anxiety Stress Scales Brief Core Schema Scales	Severe childhood sexual abuse was found to be associated with psychotic-like experiences. Paranoid ideation was associated with high levels of anxiety, depression, and negative beliefs about the self

Authors	Participants	Research Variable(s)	Design	Research Measures	Summary of Results
Galletly, Van Hooff, & McFarlane (2011)	806 bush-fire exposed children and 725 control children Follow up with 529 bush-fire group and 464 controls	Childhood exposure to severe trauma (bush-fire) Other childhood traumatic experiences Psychotic symptoms	Prospective	Psychosis screen from the Australian National Survey of Health and Well-Being Ten Criterion-A events from the Composite International Diagnostic Interview Adverse Childhood Experiences Scale Measure of Parenting Style Rutter Parent Scale Rutter Teacher Scale Alcohol Use Disorders Identification Test	Subjects exposed to bush-fires as children were not found to have a significant risk of developing psychotic symptoms. Psychotic symptoms were associated with high rates of childhood adversity, emotional and behavioural difficulties, dysfunctional parenting, and alcohol and cannabis abuse
Gaudiano & Zimmerman (2010)	A sample of 623 subjects with a diagnosis of Major Depressive Disorder (32 with psychotic features, 591 without psychotic features)	Major Depressive Disorder (MDD) Psychotic features Childhood trauma	Retrospective	Structured Clinical Interview for DSM-IV Structured Clinical Interview for DSM-IV Personality Clinical Global Impression Scale Childhood Trauma Questionnaire	MDD subjects with psychotic features were significantly more likely to have experienced physical or sexual abuse compared to MDD subjects without psychotic features

Authors	Participants	Research Variable(s)	Design	Research Measures	Summary of Results
Goldstone, Farhall, & Ong (2011)	Non-clinical sample of 133 subjects Clinical sample of 100 subjects with psychosis	Heredity Childhood trauma Early cannabis use Proximal life stressors Psychological coping Delusions	Retrospective	Early Trauma Inventory-Self Report Survey of Recent Life Experiences The Acceptance and Action Questionnaire Peters Delusions Inventory	Childhood emotional trauma combined with subsequent life stressors predicted vulnerability to delusions in the non-clinical sample. Childhood sexual trauma predicted vulnerability to delusions in the clinical sample
Gracie et al. (2007)	A sample of 228 college students	Trauma Hallucinations Paranoia Post Traumatic Stress Disorder Perceptual anomalies Schematic beliefs	Retrospective	Traumatic Life Events Questionnaire Two questions from the Childhood Trauma Questionnaire An item on bullying The Self-Report Scale – Post Traumatic Stress Disorder The Brief Core Schema Scale The Paranoia Scale The Launay Slade Hallucination Scale The Structured Interview for Assessing Perceptual Anomalies	Association was found between negative beliefs about the self and others, Post Traumatic Stress Disorder, and predisposition to paranoia and hallucinations. A clear link was found between trauma and psychosis as mediated by negative beliefs about the self and others.

Authors	Participants	Research Variable(s)	Design	Research Measures	Summary of Results
Greenfield, Strakowski, Tohen, Batson, & Kolbrener (1994)	38 adults with their first psychiatric admission	First – episode psychosis Childhood abuse Dissociative symptoms	Prospective	Brief Psychiatric Rating Scale Life Experiences Questionnaire Questionnaire of Experiences of Dissociation	There was a high prevalence of childhood abuse in the subjects. Significantly more dissociative symptoms were found in those with a history of abuse
Houston, Murphy, Adamson, Stringer, & Shevlin (2008)	A sample of 5877 subjects from the general population as part of the National Comorbidity Survey	Childhood sexual abuse Early Cannabis use Psychosis	Retrospective	Composite International Diagnostic Interview Structured Clinical Interview for DSM-R Questions for childhood sexual abuse	No significant main effect for childhood sexual trauma or early cannabis use was found. However, the interaction was found to be significant.
Janssen et al. (2004)	4045 subjects from the general population, aged 18 – 64 years	Childhood abuse (emotional, physical, psychological or sexual abuse) psychotic symptoms	Prospective	Semi-structured interview Composite International Diagnostic Interview Items from the Brief Psychiatric Rating Scale Camberwell Assessment of Need	Childhood abuse predicted the development of psychotic symptoms in adulthood. A dose – response relationship was found

Authors	Participants	Research Variable(s)	Design	Research Measures	Summary of Results
Lardinois, Lataster, Mengelers, van Os, & Myin-Germeys (2011)	A sample of 50 subjects with psychosis	Childhood trauma Stress sensitivity Psychosis	Retrospective	Comprehensive Assessment of Symptoms and History Childhood Trauma Questionnaire – Dutch Version	A significant association was found between stress and childhood trauma on negative affect, activity stress, and intensity of psychosis, demonstrating that history of childhood trauma in people with psychosis is associated with increased sensitivity to stress.
Mason, Brett, Collinge, Curr, & Rhodes (2009)	39 subjects with DSM-IV diagnosis of a psychotic disorder	Childhood abuse Delusions Psychotic disorder	Retrospective	Childhood Trauma Questionnaire Schedules for Clinical Assessment in Neuropsychiatry	A high degree of childhood emotional abuse. Childhood physical and sexual abuse were also frequent. No association was found between abuse and paranoid delusions
Ramsay, Flanagan, Gantt, Broussard, & Compton, 2011	A sample of 61 subjects with first-episode psychosis	Childhood maltreatment and trauma Social variables Substance abuse Positive and negative symptom severity	Retrospective	The Childhood Trauma Questionnaire-Short Form Trauma Experiences Checklist Lifetime Substance Use Recall Scale for the Assessment of Positive Symptoms Scale for the Assessment of Negative Symptoms	High rates of childhood abuse and traumatic events were found. Educational attainment and psychosocial problems correlated with childhood abuse. Positive symptoms correlated with childhood trauma. Negative symptoms correlated with neglect

Authors	Participants	Research Variable(s)	Design	Research Measures	Summary of Results
Read (1998)	100 consecutive admissions to an inpatient psychiatric	Childhood abuse Psychological disturbance Suicidality Length of admission Age at first admission Use of Intensive Care Unit and Mental Health Act	Retrospective	Medical record Clinical notes	Association between childhood sexual or physical abuse and suicidality, duration of hospital stay, and age at first admission. Sexually abused males, but not females, were found to be significantly more suicidal
Read, Agar, Argyle, & Aderhold (2003)	200 subjects from community mental health centre (92 with physical or sexual abuse compared with 108 with no abuse documented)	Physical and sexual abuse during childhood and adulthood Positive symptoms of schizophrenia	Retrospective	Review of medical records	Hallucinations, but not delusions, thought disorder or negative symptoms, were significantly found more in individuals with child abuse history
Reiff, Castille, Muenzenmaier, & Link (2011)	A sample of 30 subjects with psychosis	Childhood abuse Content of adult psychotic symptoms	Retrospective	A measure to assess childhood abuse Thematic analysis	Congruent patterns between hallucinations and childhood traumatic experiences were found in subjects who had experienced childhood sexual or physical abuse.

Authors	Participants	Research Variable(s)	Design	Research Measures	Summary of Results
Shevlin, Houston, Dorahy, & Adamson (2008)	A sample of 8000 participants from the National Comorbidity Survey and 8580 participants from the British Psychiatric Morbidity Survey	Cumulative childhood traumas Psychosis	Retrospective	Modified version of the Composite International Diagnostic Interview Psychosis Screening Questionnaire Schedule for Assessment in Neuropsychiatry List of Threatening Experiences	Experiencing of two or more types of trauma significantly increased the likelihood of psychosis, demonstrating a dose response relationship
Shevlin et al. (2011)	A sample of 2,353 adults from the general population as part of the National Comorbidity Survey Replication	Childhood adverse experiences Auditory and visual hallucinatory experiences	Retrospective	Posttraumatic Stress Disorder module and the Psychosis module of the Composite International Diagnostic Interview	All three types of childhood experiences of abuse, that is rape, sexual abuse and physical abuse were related to both types of hallucinations. Rape and physical abuse in childhood significantly predicted both auditory and visual hallucinations.
Spataro, Mullen, Burgess, Wells, & Moss (2004)	A sample of 1612 male and female victims of childhood sexual abuse who had subsequent contact with mental health services. Compared with a general population control group	Childhood sexual abuse Adult mental disorders Childhood mental disorders Psychosis	Prospective	Records of the Victorian Institute of Forensic Medicine Victorian Psychiatric Case Register	An association was found between childhood sexual abuse and the subsequent rates of childhood and adult mental disorders. No association was found between sexual abuse and psychosis

Authors	Participants	Research Variable(s)	Design	Research Measures	Summary of Results
Spauwen, Krabbendam, Lieb, Wittchen, & Van Os (2006)	A random sample of 2524 adolescents from the general population	Psychological trauma Psychotic symptoms Psychosis proneness	Prospective	Composite International Diagnostic Interview Symptom Checklist-90-Revised Trauma questions (visual representation)	Psychological trauma was found to be associated with psychotic symptoms in people with psychosis proneness
Sporle, Winter, & Rhodes (2011)	A sample of 21 subjects with psychosis, divided into two groups according to the presence or absence of childhood sexual abuse	Childhood sexual abuse Construction of self and others Psychosis	Retrospective	Sexual Abuse Scale of the Childhood Trauma Questionnaire Stressful Life Experiences Screening-Long Form Impact of Event Scale-Revised Psychotic Symptom Rating Scales Positive and Negative Syndrome Scales	No significant findings to support the hypotheses that individuals who had a history of childhood sexual abuse had lower levels of self-elaboration, less likely to see themselves like other people, or had a higher level of conflict in their self-concept
Steel, Marzillier, Fearon & Ruddle (2009)	384 subjects from the general population	Childhood abuse Schizotypal personality Depression Anxiety Core beliefs	Retrospective	The Traumatic Life Events Questionnaire Schizotypal Personality Scale Depression Anxiety Stress Scales The Brief Core Schema Scale	Subjects who had experienced physical or sexual abuse showed higher levels of paranoia, suspiciousness and unusual perceptual experiences but not magical thinking. This group also had more negative beliefs about the self and others and high levels of anxiety and depression. No such association was found for emotional abuse

Authors	Participants	Research Variable(s)	Design	Research Measures	Summary of Results
Thompson et al. (2009)	A sample of 30 subjects with high clinical risk for psychosis	Childhood trauma Prodromal symptoms Of psychosis Ethnicity	Retrospective	Structured Interview for Prodromal Syndromes Scale Early Trauma Inventory Hamilton Anxiety Rating Scale Hamilton Rating Scale for Depression	In the total sample, 83% reported childhood physical abuse, 67% emotional abuse and 27% sexual abuse. Exposure to trauma was positively associated with severity of attenuated positive symptoms, primarily in ethnic minority participants. Exposure to childhood trauma was related to affective symptoms only in Caucasian sub-group.
Thompson et al. (2010)	A sample of 92 subjects with psychotic symptoms attending a public mental health clinic for ultra high risk for psychosis	Psychotic symptoms with sexual content Childhood trauma	Retrospective	The Comprehensive Assessment of At-Risk Mental States 12-item questionnaire for assessment of trauma Questionnaire to assess the presence or absence of psychotic symptoms with sexual content	A high number of subjects had experienced sexual trauma and exhibited psychotic symptoms with sexual content

Authors	Participants	Research Variable(s)	Design	Research Measures	Summary of Results
Vogel, et al. (2011)	35 participants with non-psychotic disorder and 25 with schizophrenia	Childhood abuse Neglect Posttraumatic distress Adult dissociation	retrospective	Scale for the Assessment of Positive Symptoms Scale for the Assessment of Negative Symptoms Montgomery-Asberg Depression Rating Scale Posttraumatic Stress Diagnostic Scale Childhood Trauma Questionnaire AMDP module on dissociation	An association between schizophrenia and childhood neglect was found. Childhood trauma was also associated with posttraumatic symptoms and negative symptoms
Whitfield, Dube, Felitti, & Anda (2005)	A sample of 17,337 adults from the general population	Multiple adverse childhood experiences Hallucinations	Retrospective	Adverse Childhood Experiences Study Questionnaire Questions from the Childhood Trauma Scale Questions about hallucinations and substance abuse	A statistically significant and graded relationship was found between experiences of childhood trauma and histories of hallucinations, which was independent of a substance abuse history.

3. Prevalence of Childhood Trauma in Psychosis

The association between childhood trauma and psychosis has been studied in both general and clinical populations. Numerous studies conducted on clinical populations of people with psychosis, have also yielded a strong association between childhood abuse and psychosis (e.g., Cutajar et al., 2010; Kim et al., 2006; Masters, 1995; Mueser, et al., 1998; Ross & Joshi, 1992; Schenkel, Spaulding, Dilillo D, Silverstein, 2005; Vogell et al., 2011). In fact, there is evidence to suggest that the prevalence rates of childhood abuse in clinical populations are higher than are found in non-clinical populations (Briere, 1992; Spataro, et al., 2004).

In one of the earlier studies, Greenfield, Strakowski, Tohen, Batson, & Kolbrener (1994) investigated the prevalence of childhood abuse in first episode psychosis and reported a prevalence rate of 53%. Although this rate is high, this study failed to take into account other forms of childhood abuse, notably emotional abuse or neglect and only focused on childhood physical and sexual abuse. In addition, a lack of a control group was another limitation of the study. A lower prevalence rate of childhood abuse of 37% was reported in individuals diagnosed with schizophrenia spectrum disorders (Miller & Finnerty, 1996). This difference in prevalence rates could be attributable to different methodology used, most notably related to the presence or an absence of a control group.

A more robust study was designed by Uçok and Bikmaz (2007) which investigated a similar construct of childhood trauma in first episode schizophrenia. The findings showed that 29.8% of the sample reported childhood sexual abuse, 40.9% reported emotional abuse, and 13.6% reported physical abuse. Another important finding was the childhood emotional neglect and physical neglect which were reported to be

29.5% and 20.5%, respectively. Despite having the methodological limitation of lacking a control group, also acknowledged by the authors, the strength of the study lies in the standardised measures used to measure both the childhood trauma and schizophrenia. The high rate of emotional abuse and neglect is noteworthy and it is important to note that a large majority of the previous studies investigating the childhood trauma and psychosis link have failed to explore the adverse role childhood emotional abuse and neglect on the development of psychosis in adulthood.

Some of the more recent studies investigating the relationship between childhood trauma and psychosis have been population based and cross-sectional in nature (Alemany, et al., 2011; Bebbington et al., 2004; Bebbington et al., 2011; Shevlin et al., 2007; Whitfield, Dube, Felitti, & Anda, 2005). Bebbington et al. (2004) used data from the British National Survey of Psychiatric Morbidity to explore the association of adverse early circumstances and the development of psychotic disorders and found that 34.5% of the subjects who met the criteria of a definite or probable psychotic disorder, experienced sexual abuse at some point in their life. Interestingly this study also investigated the experiences of ‘bullying’ and found that 46.4% of the subjects had been bullied. Despite, having a large population based sample, this study did not define the timing, duration, or the severity level of the abuse, making it difficult to ascertain if the adverse experiences occurred in childhood or later (Morgan & Fisher, 2006). Moreover, the measurement of abuse was not based on any reliable or valid measure but a single question on the presence or an absence of different adverse experiences.

As most of the studies investigating the association between child sexual abuse and adverse psychological outcomes have been carried out in random community samples,

Spataro et al. (2004) have highlighted methodological limitations of such studies due to the reliance on the retrospective recall and ascertainment of child sexual abuse. In addition, most of the studies on child sexual abuse have primarily focused on female victims. To address these issues, a prospective study on the impact of childhood sexual abuse on mental health in both males and females was carried out (Spataro et al., 2004). The findings suggested no significant association between childhood sexual abuse and schizophrenic disorders. However, the authors have noted that this discrepancy could be related to certain methodological limitations, one of which is the average age of the cohort studied, which was in the 20s. It is a possibility that some of the subjects may have developed psychosis in the following years, which this study could not capture. In addition, the general population sample used was considerably older compared to the sample of individuals abused. Another reason for discrepancy with previous studies could be the methodology of the study. This study employed a case registry methodology to identify victims of childhood sexual abuse and the outcome measure used was the contact with the public mental health services, which raises the issue of lack of valid and standardised measures. In addition, the authors acknowledged that a significant minority of cases had no diagnosis recorded on the register, but offer no clarity on the procedures employed to address the missing data. Although, this was a prospective study, it relied wholly on data records of subjects, which could be another source of bias, as the use of official data records have been highlighted to produce biased samples which influences the true estimation of abuse (Fergusson, Horwood & Woodward, 2000) as most of the child abuse cases are not reported to the police (Read, McGregor, Coggan, & Thomas, 2006).

Building up on their earlier work (Spataro et al., 2004), a similar study was conducted by Cutajar et al. (2010) by using a larger sample and without some of the

methodological limitations of the earlier study. This recent study employed a matched comparison group which made the methodology more robust and reliable.

Interestingly, by removing some of the limitations, this study yielded very different results from the earlier (Spataro et al., 2004) study but in line with the majority of studies, that is, rates of psychosis in psychosis in general and schizophrenic disorders in particular were significantly higher among childhood sexual abuse victims compared with the controls, with even higher rates if penetrative sexual abuse was involved. These findings were corroborated by Bebbington et al. (2011) who also reported that while the risk of psychosis was strongly associated with non-consensual sexual intercourse, it was not associated on its own to less severe forms of sexual abuse, such as touching and inappropriate talk. Thus, so far, there has been considerable research in the area of the association of childhood sexual abuse and psychosis and there is evidence to suggest a strong link (Bebbington et al., 2004; Bebbington et al., 2011; Janssen et al., 2004) but less of an interest in other types of childhood abuse, particularly emotional abuse and neglect.

3.1 Role of Gender

Historically, childhood abuse studies have only focused on females, especially those investigating childhood sexual abuse. There has been a lack of mixed gender studies and most of the studies exploring the association of childhood trauma and psychosis tend to be female only or male only (Bendall et al., 2008). There is evidence to suggest that in two studies, an equal proportion of males with psychosis reported experiences of childhood abuse (Goff, Brotman, Kindlon, Waites, & Amico, 1991; Greenfield et al., 1994). These findings are important as they entail that the adverse

effects of childhood trauma are not gender-specific (Greenfield et al., 1994; Spataro et al., 2004). Fisher et al. (2009) conducted the first and largest systematic study to investigate gender differences in the prevalence of childhood sexual and physical abuse in people with psychosis, using a case-control design. The findings showed that women in the cases group were twice as likely to report either childhood physical or sexual abuse. In addition, the effects of physical abuse was found to be more strongly related to psychosis, compared to childhood sexual abuse, which was also true for the female control group. No association of childhood abuse and psychosis was found in men. The reported prevalence rates of this study were lower compared to those reported in a recent review by Morgan and Fisher (2007), who summarised the prevalence rates of childhood abuse reported in in-patient populations. This discrepancy in findings could be due to the use of in-patients with chronic schizophrenia, in the earlier studies, with high prevalence rates of childhood abuse due to a more persistent course of psychosis and poor functional outcome (Fisher et al., 2009). A more recent study suggested that the association between childhood sexual abuse and psychosis was strongly moderated by gender and this link was found to be significantly stronger in females (Bebbington et al., 2011). Thus, no clear consensus could be reached with regards to the type of childhood abuse and its association with gender, as the investigations so far have given mixed results. In addition, the lack of gender matched general population control groups in the studies carried out, makes it difficult to draw solid conclusions on the role of gender in the association between childhood trauma and psychosis (Bendall, Jackson, Hulbert, & McGorry, 2008).

3.2 Association of Childhood Trauma with Delusions and Hallucinations

Previous research has not only focused on the relationship of childhood trauma and psychosis, but also the nature of specific symptoms of psychosis, most notable, hallucination and delusions. In a population based survey, a statistically significant and graded relationship was found between self-reported experiences of childhood adversity and hallucinations. The authors concluded that childhood trauma significantly increases the likelihood of experiencing hallucinations, regardless of the type of trauma. (Whitfield, Dube, Felitti, & Anda, 2005). These findings were corroborated by another study by Shevlin et al. (2011) who reported that childhood rape and physical abuse predicted the experience of both auditory and visual hallucinations in the general population. Although in this study, childhood sexual abuse did not predict hallucinations, it is important to note here that ‘sexual abuse’ was defined separately from ‘rape’ in this study, which could explain the discrepancy with other research that has found childhood sexual abuse to be a strong predictor of hallucinatory experiences.

Research in this area has not only focused on the relationship of childhood trauma and hallucinations but has also aimed to understand the content of hallucinatory experiences related to childhood abuse, especially childhood sexual abuse. Read, Agar, Argyle, and Aderhold (2005) conducted a study using a community based sample and found a strong evidence for the association of childhood sexual and physical abuse and hallucinations. Moreover, the victims of abuse were more likely to experience hallucinations with a destructive command element and with sexual content, compared to the non abused group. More recently, Reiff et al. (2011) explored the actual content of hallucinatory experiences in a clinical sample of 30

individuals, using thematic analysis. The researchers reported congruent patterns between hallucinations and childhood traumatic experiences in people who had experienced sexual or physical abuse.

Delusions, which is another prominent feature of psychosis has also been studied in relation to childhood trauma. In a study by Read, Agar, Argyle, and Aderhold (2003) delusions was experienced by 40% clients who had experienced childhood sexual abuse. This finding was corroborated by Janssen et al. (2004) who provided evidence of the association between delusions and childhood trauma and this association being even stronger than the one between hallucinations and childhood trauma. The studies so far have focused on the positive symptoms of psychosis, however, none of the studies reviewed sought to investigate negative symptoms of psychosis, which may have also have a role to play in the childhood trauma – psychosis link.

3.3 A Dose-Response Relationship

Research conducted with non-psychotic clinical populations has demonstrated that the severity of childhood abuse is associated with the resulting mental health difficulties (Fergusson, Horwood, & Lynskey, 1996; Mullen, Martin, Anderson, Romans, & Herbison, 1993; Read, Agar, Barker-Collo, Davies, & Moskowitz, 2001). A similar dose-response response relationship between childhood trauma and psychotic symptoms in adulthood has been suggested (Kilcommons & Morrison, 2005; Schenkel, Spaulding, Dilillo, & Silverstein, 2005; Shevlin et al, 2011; Spauwen, Krabbendam, Lieb, Wittchen, & VanOS, 2006).

Research evidence also suggests that a graded relationship exists between childhood trauma and the experience of hallucinations (Whitfield, et al., 2005). An empirical study investigating childhood abuse as a risk factor for psychotic experiences in the general population found that the risk of developing psychosis increased with the increased severity of childhood abuse. The results showed that participants who had experienced a mild severity of child abuse were 2.0 times more likely than non-abused participants, to develop psychosis, with those who experienced moderate and high severity of abuse, the likelihood increased to 10.6 and 48.4 times, respectively. This finding was corroborated by Shevlin, Houston, Dorahy, and Adamson (2008) who conducted a study to specifically investigate the association between cumulative childhood trauma and psychosis. The study was based on two large representative samples, one from the United States of America (The National Comorbidity Survey [NCS]) and the other from United Kingdom (British Psychiatric Morbidity Survey [BPMS]). The findings demonstrated that multiple trauma experiences in childhood increase the likelihood of psychosis in adulthood. This likelihood increases significantly with two or more traumas, lending further support to the dose-response relationship. Although, this was a large scale study, it is interesting to note that no standardised measures were employed to measure childhood trauma and only a 'yes' or 'no' response to different types of childhood traumas was required from the subjects. This method of inquiring about childhood abuse, as compared to asking specific questions, could lead to a significant underreporting of abuse and in some cases this has been reported to be around 50% (Dill, Chu, Grob, & Eisen, 1991). Thus, if a standardised method of asking about childhood abuse had been employed, it is likely that an even stronger association between multiple childhood traumas and psychosis would have been found.

4. Reliability and Accuracy of Self-Report of Childhood Trauma

Compared to cross-sectional retrospective studies, longitudinal prospective studies are more difficult to conduct due to major resource implications in terms of both time and expense. Moreover, there are certain ethical difficulties in running longitudinal studies (Hardt & Rutter, 2004). Due to these methodological limitations, majority of the investigations exploring the relationship between childhood trauma and psychosis have employed cross-sectional retrospective methodology to gather research data (Fisher et al., 2011). However, there has been a substantial amount of concern and criticism in using the retrospective self-report method of assessment for possibly producing accounts that are both unreliable and inaccurate due to various factors including the process of forgetting (Piolino, Desgranges, Benali, & Eustache, 2002) and the nature of psychosis being detached from reality and the delusional system within psychosis (Lysaker, Beattie, Strasburger, & Davis, 2005; Young, Read, Barker-Collo, & Harrison, 2001).

It is interesting to note that the vast body of research on the association between childhood trauma and psychosis has highlighted the use of retrospective self-report as a major methodological limitation and researchers have called for more longitudinal prospective studies in order to ascertain the relationship between childhood trauma found in their studies. Fisher et al. (2011) carried out a study to establish the accuracy of retrospective self report of childhood trauma by people with psychosis. The findings suggest that self-reports of childhood abuse remain stable over a long period of time and the severity of symptoms of psychosis does not affect the likelihood of reporting of childhood abuse. Previous research has also demonstrated that adult psychiatric patients can accurately report history of childhood trauma (Goodman et

al., 1999) and that people with psychosis can report as accurately as other members of the general population. It is imperative that reports of childhood trauma by people with psychosis should be given their due importance and not perceived only as part of their delusional system.

4.1 Asking About Childhood Trauma

Closely linked to the concern about the accuracy of reports of childhood experiences of abuse by people with psychosis is the failure of psychiatric staff to routinely include questions about childhood abuse in the assessment phase (Lothian & Read, 2002; Read, 2006; Young, Read, Barker-Collo, & Harrison, 2001). This often happens due to the assumptions on part of the mental health staff that people with this condition may not be able to respond to questions about childhood adverse experiences in a rational way (Byrne, Velamoor, Cernovsky, Cortese, & Losztyn, 1990). Indeed, this is not the case, as discussed in the earlier section. Another reason for not exploring childhood abuse has been given as the underlying belief in the omnipotence of biological and genetic factors in the etiology of psychosis (Read et al., 2005). At times, clinicians may refrain from asking about childhood abuse due to the frequent media allegations of implanting false memories in the patients' minds'. This may not be the case as mental health professionals rarely ask about childhood abuse (Read, Hammersley, & Rudegeair, 2007).

Read et al. (2007) have written an important paper to discuss guidelines on how to ask about childhood abuse and the barriers in asking and responding to abuse. They have highlighted the need that all mental health patients should be asked about the history

of childhood abuse. Moreover, no evidence was found by the authors to suggest that asking leads to any serious or permanent damage to the patient with mental health difficulties. Such questions should not be restricted to certain symptoms or diagnostic categories, as high prevalence of childhood abuse exists in nearly all mental health conditions. It is important that questions about childhood abuse be asked in a sensitive manner and response to disclosure of abuse should be validating and non-judgemental.

According to NHS guidelines, all psychiatric service users should be asked about past traumatic experiences, and this should be implemented regardless of the type of diagnosis or the clinical presentation of the service users (NHS, 2008). Longden, Madill, and Waterman (2012) have pointed out that although asking about childhood abuse is important in routine clinical work, but equally important is the notion that clinicians do not assume a positive childhood maltreatment history in this client group.

5. Measurement of Childhood Trauma

In the studies reviewed, a large majority used different measures for childhood trauma. Roy and Perry (2004) conducted a review of the instruments used for the assessment of childhood trauma in adults and identified 21 observer related and 21 self-report measures. Although, the authors were primarily interested in measures used to study childhood trauma in people with borderline personality and depression, the review demonstrated the variation in assessment measures to gather information about childhood trauma.

Not all studies aimed to measure the same aspects or types of childhood trauma. Some focused only on childhood sexual abuse, while some included childhood physical abuse, sexual abuse, emotional abuse, and neglect. Yet, other studies included all types of childhood adversities. Moreover, a large number of studies reviewed lacked the use of valid, reliable and standardised assessment measures. Some authors developed their own specific questions to ask about childhood trauma, which further complicates the replicability of such studies.

A variety of retrospective self-report measures have been used to measure childhood trauma, including Life Experiences Questionnaire, Adverse Childhood Experiences Scale, Traumatic Life Events Questionnaire, Childhood Experiences of Care Abuse Questionnaire. A measure that has been found to be more consistently used in studies is the Childhood Trauma Questionnaire (CTQ) developed by Bernstein et al. in 1994 (Alemany et al., 2011; Gaudiano & Zimmerman, 2010; Lardinois, Lataster, Mengelers, van Os, & Myin-Germeys, 2011; Mason, Brett, Collinge, Curr, & Rhodes, 2009; Ramsay, Flanagan, Gantt, Broussard, & Compton, 2011; Sporle, Winter, & Rhodes, 2011). The CTQ is a retrospective self-report measure and comprises of five scales to measure different types of childhood trauma: physical abuse, sexual abuse, emotional abuse, and physical and emotional neglect. The questions are scored on a 5-point Likert Scale, with responses ranging from '1 = never true' to '5 = very often true'. It is a short questionnaire and usually takes 5 minutes to administer. The CTQ was originally developed in a sample of adults receiving treatment for substance abuse disorders. The psychometric properties have subsequently been evaluated in both general and clinical populations. It has been found to have good convergent and discriminant validity, as well as, good internal consistency and reliability (Bernstein et al., 1994; Bernstein, Ahluvalia, Pogge, & Handelsman, 1997; Scher, Stein,

Asmundson, McCreary, & Forde, 2001). Although the CTQ is a valid and reliable measure, like all measures, it also has a number of limitations, most notably the lack of information on the age range for the traumatic events (Briere, 1997).

Some authors have not reported the psychometric properties of the instruments used in their studies as well as the duration of the administration. Reporting of the instrument characteristics could help clinicians and researchers in selecting the right instrument (Roy & Perry, 2004). The considerable variation in types of measures used to assess childhood trauma is noteworthy as it has implications in making direct comparisons between different studies (Bendall et al., 2008). Therefore, there is a need to use consistent measures which have good psychometric properties, which would facilitate meaningful comparisons between studies.

6. Theoretical Bases of the Association between Childhood Trauma and Psychosis

It is important to gain a theoretical understanding of the processes that play a role in how childhood trauma results in psychosis. Several theories have been postulated to explain this association. There is a debate on the role of psychological and biological paradigms and which one explains this association more robustly. According to Read et al. (2005) any theory which attempts to explain the association of childhood trauma and psychosis should integrate both the biological and psychological paradigms.

Amongst various theories postulated to understand the development of psychosis, probably the most dominant conceptual framework is the Stress-Vulnerability or the Biopsychosocial Model. This model was first proposed by Zubin and Spring (1977).

According to this model, every individual has certain biological, psychological, and social traits. These traits have strengths and vulnerabilities in order to deal with any stress. This model suggests that individuals have different levels of genetic vulnerabilities to internal or external stressors. Individuals who have high genetic vulnerability to stress are more likely to develop psychosis when exposed even smaller levels of stress, whereas, individuals who have low genetic vulnerability to stress will need greater levels of stress to experience psychosis.

Cognitive models have been proposed to explain the link between early traumatic experiences and development of cognitive vulnerability. Garety, Bebbington, Fowler, Freeman, and Kuipers (2007) developed a model to describe how cognitive processes lead to the development of delusions and hallucinations. Adverse experiences lead to the development of negative beliefs or schemas about the self, others, and the world. These individuals perceive themselves as vulnerable, interpret even ambiguous events as dangerous, and people not trustworthy. This negative view point has been suggested to lead to low self esteem and depression in individuals with positive symptoms of psychosis (Drake et al., 2004; Freeman, 2006; Guillem, Pampoulova, Stip, Lalonde, & Todorov, 2005; Johns et al., 2004). Although this construct has been investigated using both clinical and non-clinical populations, however, the findings from non-clinical studies provide better information due to larger sample size (Freeman, 2007).

One of the other cognitive models to understand the positive symptoms of psychosis has been proposed by Morrison (2001), which argues that the positive symptoms of psychosis (delusions and hallucinations) could be seen as 'intrusions' by the individual and it is how the individual interprets these intrusions which leads to

distress. Adverse childhood experiences may affect this process by interpreting these intrusions negatively. There is some research evidence available to back this theory about the association between symptom interpretation and the resulting distress in individuals who experience developmental trauma (Bak et al., 2005; Gracie et al., 2007).

Additionally, an alternative model of two distinct forms of paranoia: ‘poor me’ and ‘bad me’ has been proposed by Trower and Chadwick (1995). Individuals with ‘poor me’ paranoia “*tend to blame others, to see others as bad, and to see themselves as victims*” (Trower & Chadwick, 1995, p. 265). These individuals believe that they are being persecuted for no apparent reason. In contrast, individuals with ‘bad me’ paranoia “*tend to blame themselves and see themselves as bad, and view others as justifiably punishing them*” (Trower & Chadwick, 1995, p. 265). This model explains paranoia in terms of a cognitive tendency to perceive evaluations from others negatively.

In addition to the cognitive models of psychosis and paranoia discussed above, other more integrative models have also been proposed. Read, Perry, Moskowitz, and Connolly (2001) developed a Traumagenic Neurodevelopmental (TN) model of schizophrenia to explain how childhood trauma can lead to the development of psychosis. The authors presented some empirical research evidence to demonstrate that children who had experienced trauma have over-reactivity and dysregulation in the hypothalamic-pituitary-adrenal (HPA) axis. Moreover, dopamine irregularities have also been found in traumatised children. This model also proposes that structural neurological abnormalities such as hippocampal damage, cerebral atrophy, ventricular enlargement, and reversed cerebral asymmetry found in traumatised children are

similar to those found in the brains of individuals with schizophrenia (Read et al., 2001). According to Read et al. (2005), “*The TN model proposes that trauma, if sufficiently prolonged, severe or early, can actually create the vulnerability in the vulnerability-stress equation*” (Read et al., 2005, p.243). Although the TN model has been linked to the stress-vulnerability model, however, it has been argued that this model is a more ‘genuine integration’ of the social, psychological, and biological factors compared to the bio-psycho-social or the vulnerability stress model of psychosis. The evidence so far suggests that more research is needed to fully understand the mechanisms through which the TN model operates as the TN model has been criticised for being ‘highly speculative’ (Morgan & Fisher, 2007). Perhaps, there is a need to integrate the biological and psychological viewpoints even more to get a clearer picture on how childhood trauma is associated to the development of psychosis.

7. The Role of Mediating Factors

Emotional distress such as anxiety and depression has been empirically investigated and has been suggested to play an important role in the maintenance of psychotic symptoms (Drake et al., 2004; Garety et al., 2001; Johns et al., 2004). There is evidence to suggest that individuals with psychosis, who also have depression, are more likely to experience the residual symptoms of delusions and hallucinations. These individuals also have a high level of hopelessness which can contribute to the maintenance of their psychosis, resulting in a poor outcome (Aguilar et al., 1997; Birchwood & Iqbal, 1998). A number of researchers have conducted investigations of the relationship of paranoia and depression and have put forward different arguments

to explain this relationship. Bentall, Corcoran, Howard, Blackwood, and Kinderman (2001) have argued that persecutory delusions are in fact a kind of a defence mechanism against depressive processes. Whereas, others have argued that persecutory delusions are directly related to emotional concern and distress (Freeman et al., 2002).

Anxiety is another type of emotional distress that has been studied in individuals with psychosis. Garety et al. (2001) have argued that anxiety plays a crucial role through three cognitive processes: firstly, information processing biases which contribute to the development and maintenance of psychotic beliefs (Freeman, Garety, & Phillips, 2000). Secondly, through the safety behaviours which function to prevent any change in their beliefs (Freeman & Garety, 2000); thirdly, through the metacognitive beliefs about their psychotic thoughts, which serve to increase their levels of distress (Freeman & Garety, 1999).

Freeman and Fowler (2009) conducted a retrospective cross-sectional study on a general population sample and found that in addition to severe childhood sexual abuse being associated with psychotic-like experiences, paranoid ideation was found to be associated with high levels of anxiety, depression, and negative beliefs about the self. This study was a replication of an earlier study by Gracie et al. (2007), with a number of improvements, including studying a representative sample of the general population, improved measures for persecutory and hallucinatory experiences, with additional anxiety and depression measures (Freeman & Fowler, 2009). However, it is safe to say that most of the mediational studies investigating mediation between childhood trauma and psychosis have been conducted using non-clinical populations and the applicability of such findings remain to be investigated (Gracie et al., 2007).

Therefore, there is a need to study the role of mediational variables, such as anxiety, depression, and schematic beliefs in clinical samples.

8. Critical Review and Discussion

8.1 Methodological Limitations of the Literature Reviewed and Directions for Future Research

Despite a fairly substantial body of research on the association of childhood trauma and psychosis, it is essential to exercise some degree of caution in interpretation of the findings of these studies, due to a number of methodological limitations. Most of the studies reviewed did not employ adequate control or comparison groups which therefore limit the strength of conclusions drawn from these studies (Bendall, et al., 2008), especially those related to the issue of causality.

Another noteworthy limitation relates to the definition and measurement of childhood trauma. To estimate the association of childhood trauma and psychosis, it is imperative to use assessment measures that can accurately assess such experiences. There has been a lack of consistency across studies in the type of measures used. Some have employed measures that are both valid and reliable, whereas, others have used relatively crude measures, such as a small number of dichotomous (yes/no) items to establish abuse histories. Few studies have reported the psychometric properties of the instruments used, which makes it difficult to ascertain their reliability and validity. In addition, there have been a few large scale studies which have just relied on case register records of patients to find information about childhood trauma. This is likely to be an unreliable method of data gathering as it does not afford the opportunity for

corroborating that information in any other way. All such differences make it difficult to conduct any direct and meaningful comparisons between studies and may be accountable to explain the variability in the research findings (Bendall, et al., 2008).

The majority of studies have relied on self-report data. This could be a source of systemic bias. Under-reporting or over-reporting of trauma experiences could be a potential confounding factor, although some authors have suggested that in such studies, under-reporting is more likely (Fergusson, Horwood, & Woodward, 2000; Widom & Morris, 1997). Furthermore, concern has been raised on the retrospective reporting of childhood trauma, especially by individuals with psychotic symptoms. It is thought that the psychotic symptoms may make it difficult to reliably recall past traumatic experiences (Morgan & Fisher, 2007). However, it has been established that individuals with psychosis can as accurately and reliably recall their past experiences as any other individual (Read et al., 2005). Indeed, the likelihood of any recall bias cannot be fully ignored.

There has been a heavy reliance on the use of cross-sectional research designs in the studies reviewed. This lack of longitudinal research in this area was highlighted as a 'serious limitation' by Bendall et al. (2008) and called for more longitudinal research to establish the causal nature of childhood trauma in the development of psychosis.

Despite a number of methodological limitations outlined above, current research evidence suggests an association between childhood trauma and psychosis. However, there is a need to understand the underlying mechanisms which are involved in this association. This association may not be just the case of a simple causal link and a perhaps other potential mediating or moderating variables could have an important role to play in this association (Schafer & Fisher, 2011). Therefore, the role of

emotional variables, such as, anxiety and depression, cognitive factors and schematic beliefs should be further explored in this context.

In order to establish a causal link between childhood trauma and psychosis, it may be essential to conduct well controlled longitudinal studies, which the cross-sectional methodology fails to do. Moreover, this may give further evidence to support which factors are in fact the ‘cause’ and which are an ‘effect’, as Bendall et al. (2008) have stated that, *“It is also possible that causality is bidirectional, with childhood trauma being a causal factor in psychosis and the developmental abnormalities preceding psychosis being a risk factor for childhood victimisation”* (p.577). Unfortunately, resource limitations in terms of time and cost in conducting longitudinal studies is a major cause of limited number of such studies and continues to be, especially in psychological research.

Some studies have only focused on childhood physical and sexual abuse, while ignoring the equally important role of emotional abuse and neglect.

Despite a large body of literature available on the association between childhood trauma and psychosis, there has been a paucity of empirical research which investigates other forms of childhood trauma, such as bullying.

8.2. Implications for Assessment and Treatment

It has been established that mental health professionals rarely ask about childhood trauma in clients with psychosis, for various reasons. Given the high prevalence of childhood trauma in this client group and the adverse consequences associated, it is

vital that mental health professionals gather this information, which would assist in understanding clients' difficulties and formulating appropriate intervention plans, also discussed by Manning and Stickly (2009). In order for this to take place, it is important to develop specific policy and procedure for how to ask about childhood trauma and outline when it may be appropriate or inappropriate to do this inquiry (Read et al., 2005). Staff training in this respect can have far reaching implications as studies have shown that mental health staff are more likely to inquire and respond to clients' experiences of childhood abuse when given appropriate training (Read & Fraser, 1998).

The childhood trauma-psychosis link has noteworthy implications for clients' adverse childhood experiences, as noted by Whitfield et al. (2005), "*...Finding such a trauma-symptom or trauma-illness association may be an important factor in making a diagnosis, treatment plan, and referral may help patients by lessening their fear, guilt or shame about their possibly having a mental illness*". (p. 806). Thus, this association can have a positive impact on clients with psychosis by offering validation of their traumatic childhood experiences.

A range of effective and evidence based psychological treatments are available for people with psychosis, including cognitive therapy, cognitive behaviour therapy (CBT), brief cognitive behavioural therapy, family therapy, and psychodynamic psychotherapy (Gottdiener, 2004; Leff, 2000; Kingdon & Turkington, 2004; Morrison, 2004; Turkington, 2002). Read and Ross (2003) have argued that all clients with schizophrenia should have a proper trauma assessment and offered psychological interventions to address their childhood trauma.

Although there is evidence to suggest that individuals with trauma histories and psychosis can benefit from trauma focused therapies (Frueh et al., 2009; Trappler & Newville, 2007), these studies have primarily focused on Post Traumatic Stress Disorder (PTSD) symptomology in psychosis. As not everyone with childhood trauma may have PTSD, therefore, more research is needed to develop appropriate treatment plans for people with psychosis who had experienced childhood trauma (Schafer & Fisher, 2011).

There is evidence to suggest that CBT may help clients with psychosis to understand the relationship of their childhood trauma and psychotic symptoms (Manning & Stickley, 2009). Given the complex nature of childhood trauma, there may be a need to develop a more integrative approach, by taking into account the thought challenging aspect of CBT, together with the more psychodynamically oriented work of helping clients to gain an in depth understanding of their current difficulties by relating them to their past histories (Read, 1997). To develop such approaches, there is a need to empirically investigate psychological interventions to come up with those which are best suited to cater to the needs of clients with psychosis and traumatic childhood experiences. Before this stage is reached, a better understanding of the pathways and underlying factors in the development of psychosis is imperative.

9. Conclusion

The current literature review highlights the importance of the association of childhood trauma and psychosis. Although, the studies reviewed found a high prevalence of childhood trauma in adult clinical population with psychosis, as well as, symptoms of psychosis in the general population, the issue of causality is not fully established. This warrants further empirical investigations, and preferably longitudinal studies. In addition, the role of underlying psychological variables which makes an individual with childhood trauma experiences vulnerable to psychosis, have not yet been fully understood and need careful consideration in future research.

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**The Relationship of Childhood Bullying and Paranoid Thinking in a Clinical
Population: The Role of Mediators**

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Abstract

Objective

The primary objective of this study was to investigate the association between childhood bullying experiences and the development of paranoid thinking in adults with psychosis. It was hypothesised that emotions and/or negative beliefs would be the mediating variables in the relationship between childhood bullying and paranoid thinking.

Method

A cross-sectional research design was employed and data were collected from 52 participants with psychosis, recruited from the Early Intervention for Psychosis teams. Data were collected through self-report measures on demographics, childhood bullying ('direct aggression', 'indirect aggression'), 'anxiety', 'depression', 'interpersonal sensitivity', 'other-self negative beliefs', 'self-self negative beliefs', 'self-other negative beliefs', and paranoid thinking ('ideas of social reference', 'persecution').

Results

The study found that there is an association between childhood bullying (both direct and indirect aggression) and paranoid thinking (ideas of social reference and persecution). Mediation analysis revealed that Interpersonal sensitivity significantly mediates the relationship between childhood bullying (both direct and indirect

aggression) and ideas of social reference. There were significantly higher scores of childhood bullying, in the participants as compared to prior findings in the normal population.

Conclusions

The results suggest that there is a significant association between childhood bullying and paranoid thinking, mediated by interpersonal sensitivity. This finding has important clinical implications for the interventions for psychosis.

Key words

Childhood bullying, paranoid thinking, mediators.

1. Introduction

The term psychosis is used to describe a wide range of experiences including, delusions, hallucinations, confused thinking and disorganised behaviour. Delusions and hallucinations are noted to be the most common symptoms of psychosis (Bentall, 2003) and paranoia has been described as a central symptom of psychosis (Green et al., 2008). The terms delusions and paranoia are often used interchangeably within the literature. According to the World Health Organisation (WHO; 1973) the most common types of delusions or paranoid thinking are those of persecution and ideas of social reference, which occur in at least 50% of people with schizophrenia (Cutting, 1997). Wing, Cooper, and Sartorius (1974) have defined persecutory beliefs as:

“The subject believes that someone, or some organisation, or some force or power, is trying to harm him in some way: to damage his reputation, to cause bodily injury, to drive him mad or to bring about his death”. (p.10)

Garety and Freeman (2000) have added a further clarification to this definition, that the individuals experiencing persecutory delusions must believe that harm is occurring, or is going to occur to them and that the persecutor has the intention to cause that harm. The second most common type of paranoia, ideas of social reference has been defined by themes of observation (relating to surveillance and gossip of the individual) and communication, such as, ideas relating to the communication of information about the individual (through hints, double meanings, on television, radio, or newspapers) (Startup & Startup, 2005). It has been suggested that a hierarchy of paranoia exists, extending from mild social evaluative concerns, through ideas of social reference, to persecutory beliefs concerning threat.

Research suggests that paranoid thinking is highly prevalent in the general population (Ellet, Lopes, & Chadwick, 2003). Paranoia seems to fall on a continuum (Van Os & Verdoux, 2003). At one extreme end is paranoid thinking seen in psychosis and on the other end are paranoid experiences as observed in the general, non-clinical population (Freeman, 2007). According to a recent estimate, at least 10-15% of the general population frequently experience paranoid thoughts and persecutory delusions (Freeman, 2007).

Considering the paranoia continuum theory (Van Os & Verdoux, 2003) it is of importance to begin to consider why some people (10-15% of the general population) experience paranoid thoughts and persecutory delusions and what variables attribute an individual's paranoia being extreme versus mild. Previous studies have demonstrated an association between traumatic events in childhood and the development of psychosis in adulthood (Janssen et al., 2004; Read et al., 2003; Read, van Os, Morrison, & Ross, 2005). More recently, Freeman and Fowler (2009) tested the association of a history of trauma with persecutory ideation and verbal hallucinations in the general public. The results demonstrated that a history of trauma was significantly associated with both persecutory ideation and verbal hallucinations. The presence of paranoid ideation was found to be mediated by levels of anxiety, depression and negative ideas about the self. More recently, Varese et al. (2012) conducted a meta-analysis and concluded that childhood adversity is strongly associated with an increased risk for psychosis. One such traumatic event in childhood which may impact on the development of psychosis is childhood bullying.

1.1 Definition of Bullying

In general research into bullying started within the late 1970's following the publication of Dan Olweus's seminal study 'Aggression in the schools: Bullies and Whipping boys' (1978). His work generated interest in bullying research and a new research trend emerged.

There has been some disagreement on how bullying should be defined (Griffin & Gross, 2004). One reason for this lack of consistency in defining bullying could be the similarity with 'aggression'. Some researchers classify all intentional aggressive behaviour towards others as bullying, whereas other researchers only classify repeated acts of aggressive behaviour towards others as bullying (Griffin & Gross, 2004). The definitional issues are further complicated by the use of a variety of terms to define bullying in various studies. This has been discussed by Arora (1996) who found a lack of consistency in this definition within the studies he reviewed and that some researchers do not include the concepts of victimisation, social rejection, or the spreading of rumours in their definitions. This also makes it difficult to translate this term into other languages (Arora, 1996). Apart from the term 'bullying', various other terms have been used to define the same concept, including 'peer victimisation' (e.g., Juvonen & Graham, 2001; Miler & Vaillancourt, 2006), 'peer abuse' (e.g., Olweus, 1993), 'peer rejection' (e.g., Hock & Lutz, 2001) and 'peer harassment' (e.g., Newman, 2003).

A frequently used definition of bullying is by Olweus (1994), "*A student is being bullied or victimised when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more other students*" (p. 1173). Although this is a useful definition, it does not include factors such as motivation, intention or power in

relation to bullying (Griffin & Gross, 2004). A more recent definition by Rigby (2002) defines bullying as *"bullying involves a desire to hurt, hurtful action, a power imbalance, (typically) repetition, an unjust use of power, evident enjoyment by the aggressor and generally a sense of being oppressed on the part of the victim"* (p. 51). Despite different definitions offered to define bullying, researchers have agreed on some common characteristics of bullying (Greene, 2000): 1) Intention to cause harm; 2) Repeated act of aggression; 3) Aggression not provoked by the victim; 4) Occurs in familiar social groups; and 5) There is an imbalance of power between the bully and the victim.

1.2 Types of Bullying

Bullying can involve different types of behaviours. Bullying behaviours can be broadly classified into 'direct' and 'indirect' bullying. Direct bullying involves open physical attacks such as hitting, kicking, spitting and shoving, as well as, verbal behaviour such as, taunting, name calling and making threats (Boulton & Underwood, 1992; Olweus, 1993). Indirect bullying tends to be more subtle in nature (Olweus, 1993) and has been referred to as 'relational' or 'social' bullying/aggression (Archer & Coyne, 2005). Crick and Grotpeter (1995) have defined relational aggression as behaviours that intend to harm and disrupt peer relationships through behaviours such as social exclusion, manipulation, and spreading rumours. A relatively more recent type of bullying behaviour is cyberbullying and involves using online technology such as e-mail, internet and mobile phones to spread vicious and nasty messages about the victims (NSPCC, 2010).

In a meta-analysis of direct and indirect aggression and its relation to maladjustment, direct aggression was found to be associated with externalising problems, poor peer relations, and low prosocial behaviour on part of the victims, whereas, indirect aggression was found to be related to internalising problems and a higher prosocial behaviour (Card, Sawalani, Stucky & Little, 2008).

1.3 Prevalence of Childhood Bullying

Different prevalence rates of bullying have been reported, which could be partly due to the use of varied instruments and methodologies used to assess bullying. In a UK survey of 4700 children, approximately 75% children reported experiencing physical bullying within a school year but only 7% reported being the victim of severe and repeated verbal or physical bullying, damage to property, or being socially excluded (Glover, Gough, Johnson, & Cartwright, 2000). According to a study conducted by Cawson, Wattam, Brooker, and Kelly (2000), childhood bullying was reported to have been experienced by one third of the sample surveyed. Out of these, 14-15% children reported being physically bullied but a large majority reported experiencing indirect forms of bullying including threats of violence, belongings being damaged or their possessions taken away. The most common bullying behaviours were verbal insults or lies told about these children, or ignoring or socially excluding them. These findings were corroborated by later studies which showed verbal abuse to be the most common form of childhood bullying followed by relational and physical bullying (Tapport & Boulton, 2005; Stassen-Berger, 2007).

1.4 Neurobiological Bases for the Association of Childhood Bullying and Paranoid Thinking

Several theories have been postulated to explain the association between various types of childhood trauma, including emotional abuse, and paranoia. There is a debate as to the relative contributions of the role of psychological and biological paradigms and which one explains this association more robustly. According to Read et al. (2005) any theory which attempts to explain this association should integrate both the biological and psychological paradigms. Next a number of these models will be considered.

1.4.1 Stress-Vulnerability Model

Amongst various theories postulated to understand the development of paranoia, probably the most dominant conceptual framework is the Stress-Vulnerability or the Biopsychosocial Model. This model was first proposed by Zubin and Spring (1977). According to this model, every individual has certain biological, psychological, and social traits. These traits have strengths and vulnerabilities in order to deal with any stress. This model suggests that individuals have different levels of genetic vulnerabilities to internal or external stressors. Individuals who have high genetic vulnerability to stress are more likely to develop paranoid thinking when exposed even smaller levels of stress, whereas, individuals who have low genetic vulnerability to stress will need greater levels of stress to experience paranoia.

1.4.2 Traumagenic Neurodevelopmental Model

Read, Perry, Moskowitz, and Connolly (2001) developed a Traumagenic Neurodevelopmental (TN) model of schizophrenia to explain how childhood trauma can lead to the development of psychosis. The authors presented empirical research evidence to demonstrate that children who had experienced trauma have over-reactivity and dysregulation in the hypothalamic-pituitary-adrenal (HPA) axis. Moreover, dopamine irregularities have also been found in traumatised children. This model also proposes that structural neurological abnormalities such as hippocampal damage, cerebral atrophy, ventricular enlargement, and reversed cerebral asymmetry found in traumatised children are similar to those found in the brains of individuals with schizophrenia (Read et al., 2001). According to Read et al. (2005), *“The TN model proposes that trauma, if sufficiently prolonged, severe or early, can actually create the vulnerability in the vulnerability-stress equation”* (Read et al., 2005, p.243). The TN model has been criticised for being ‘highly speculative’ (Morgan & Fisher, 2007), therefore further research is needed to fully understand the mechanisms through which the TN model operates. There is a need to integrate the biological and psychological viewpoints further to develop a clearer picture as to how childhood trauma, including childhood bullying which is a type of emotional trauma, is associated in the development of paranoia. The next section will consider the role of psychological factors.

1.5 Role of Psychological Factors in Paranoia

There has been an emerging interest in establishing the psychological factors which are associated with the development of paranoid thinking in the general population. A number of such factors which have been investigated, primarily in the general population, are discussed below:

1.5.1 Role of Affective Processes

A number of studies have been conducted in both clinical and non clinical populations providing a strong evidence base for the link between anxiety and paranoia (Freeman, 2007). Anxiety has been found to be associated with paranoid thoughts (Fowler et al., 2006; Johns et al., 2004) as well as with persecutory delusions (Startup, Freeman & Garety, 2007). Freeman et al. (2008) conducted a virtual reality study to demonstrate that individuals without severe mental illness in the general population experience unfounded paranoid thoughts and to determine factors that predict paranoia. The results showed that a substantial minority reported having paranoid thoughts, which were predicted by anxiety, depression, worry, interpersonal sensitivity, perceptual anomalies and cognitive inflexibility, thus lending further support to the contribution of affective and cognitive factors in the development of paranoia. As this was a virtual reality study with members of the general public, the authors called for comparable studies using a clinical population. It has been argued that anxiety is a contributing factor in the development of paranoid thoughts and that anxiety related processes have an important and integral role in the maintenance and the distress associated with thoughts of a paranoid nature (Freeman, 2007).

1.5.2 Role of Rejection Sensitivity

One of the other psychological models that may have implications in the understanding of the development of paranoia is the Rejection Sensitivity Model proposed by Levy, Ayduk and Downey (2001). According to this model, people with high rejection sensitivity approach social situations with hypervigilance, looking for potential signs of rejection. This consequently, leads to the misinterpretation of benign signs of behaviour as a signal of rejection by other people (Butler, Doherty & Potter, 2007). There is evidence to suggest that peer rejection, which is a form of bullying, is associated with the development of rejection sensitivity (Harb, Heimberg, Fresco, Schneier, & Leibowitz, 2002). More specifically, Butler et al. (2007) have suggested that bullying and teasing experiences in childhood may lead to increased rejection sensitivity in adulthood. Although much research has been carried out investigating the association of rejection sensitivity in other psychological disorders such as anxiety and depression (Wilhelm, Boyce, & Browhill, 2004), little is known about its association with psychosis and paranoia. In Freeman et al.'s (2008) study, rejection sensitivity was found to be a mediating variable in the development of paranoid thinking in the general population.

1.5.3 Role of Negative Beliefs

A cross-sectional study conducted by Fowler et al. (2006) studied negative beliefs about self and others in a clinical sample of 252 people with psychosis. The results showed that people with chronic psychosis held extreme negative beliefs about themselves and other people. To provide further evidence, Fowler et al (2011b)

recently carried out a longitudinal study to investigate the association of negative beliefs and paranoia and have found negative cognition to play a crucial role in the maintenance of paranoia.

A model of paranoid thinking has been proposed by Trower and Chadwick (1995). According to this model, there are two types of paranoia: 'poor me' and 'bad me'. Individuals with 'poor me' paranoia tend to perceive themselves as victims and believe the persecution is unjustified, whereas, those with 'bad me' paranoia blame themselves and believe that others are justified in persecuting them. In 'poor me' paranoia negative beliefs about others play a dominant role in consciousness and in 'bad me' paranoia negative beliefs about the self dominate consciousness (Chadwick, 2006).

One of the major models to explain the development of paranoid thinking is the Threat Anticipation Model (Freeman et al., 2002). This model proposes that paranoid thinking develops with a precipitator, such as a major life event, which leads to the development of autonomic arousal, anomalous experiences, and a number of affective processes, such as anxiety, worry, interpersonal sensitivity and cognitive processes, such as reasoning biases and belief inflexibility (Freeman, 2007).

1.5.4 Role of Mediators

Emotional distress such as anxiety and depression has been empirically investigated and are suggested to play an important role in the maintenance of psychotic symptoms (Drake et al., 2004). However, little is known about how the psychological processes interact to produce any given effect. Freeman and Fowler (2009) conducted a

retrospective cross-sectional study on a general population sample and found that in addition to severe childhood sexual abuse being associated with psychotic-like experiences, paranoid ideation was found to be associated with high levels of anxiety, depression, and negative beliefs about the self. This study was a replication of an earlier study by Gracie et al. (2007), which had also showed negative beliefs to be a mediator in the development of paranoia, although without any formal mediational analysis. However, most of the mediational studies investigating mediators between childhood trauma and psychosis have been conducted using non-clinical populations and the applicability of such findings remain to be investigated (Gracie et al., 2007). Therefore, there is a need to study the role of mediational variables, such as anxiety, depression, and schematic beliefs in clinical samples.

1.6 Childhood Bullying and Psychosis

Previous studies have mainly focused on trauma related to physical and sexual abuse in children, neglecting other forms of trauma, such as, childhood bullying experiences. There is emerging evidence that suggests that bullying may be associated with the development of psychosis, although the majority of these studies have been conducted using non-clinical populations. Schreier et al. (2009) examined whether peer victimisation is associated with psychotic symptoms in a population based sample of over 6000 12-year-olds. They found that peer victimisation in childhood is associated with psychotic symptoms in early adolescence. This study did not use a valid or reliable method to measure psychotic symptoms and used a rating of ‘not present’, ‘suspected’, or ‘definitely present’ on 12 psychotic symptoms.

More recently Ashford, Ashcroft and Maguire (in press) conducted a non-clinical study of 152 undergraduate students to investigate mediating factors such as emotions, interpersonal sensitivity, and negative beliefs in the relationship between childhood bullying and paranoid thinking. The results suggested a relationship between childhood bullying and paranoia; and negative beliefs were found to be the primary mediator in this relationship.

The majority of previous studies were correlational in nature and do not satisfactorily address the factors which could mediate the relationship between childhood bullying and the development of paranoid thinking in adulthood. In addition, a majority of the studies have been conducted using a non-clinical population. It can be argued that the findings from these studies could not be extrapolated to the clinical population, which highlights the importance of using a clinical population to investigate the association of bullying and paranoid thinking, also suggested by Campbell and Morrison (2007). Moreover, some of the previous studies investigated the relationship between bullying/trauma and psychosis in more general terms rather than focusing on the specific symptom of psychosis, such as, paranoid thinking. Ashcroft, Kingdon, and Chadwick (2011) investigated the relationship of persecutory delusions and emotional abuse in people with a diagnosis of schizophrenia. Their findings suggested a specific link between persecutory delusions and childhood emotional abuse. As bullying is a form of emotional abuse, it is important to study the association of bullying with paranoia, which is a central symptom of psychosis.

Many individuals experience bullying in their childhood, however not all of these individuals develop paranoia which could be due to a number of factors, including, resiliency, the stress-vulnerability model and the dose-response model (Read et al.,

2005). According to the dose-response model, severity of childhood trauma is associated with the resulting mental health difficulties. The same may hold true for childhood bullying, where an isolated incident of bullying may not have the same effect as severe and repeated bullying.

1.7 The Current Study and Objectives:

Previous studies have demonstrated a link between childhood trauma and psychosis, while ignoring childhood bullying. The study aims to investigate the relationship between childhood bullying experiences and the development of paranoid thinking in individuals with psychosis. To the author's best knowledge, there is no known study that has sought to investigate this model in a clinical population of people with psychosis and previous research has called for studies using clinical populations to investigate the association of childhood bullying and paranoia (Ashford et al., in press; Campbell & Morrison, 2007). This current study builds upon previous studies by investigating two different types of childhood bullying: direct and indirect forms of aggression. Whilst there is research evidence available on the association of bullying and paranoia, no previous study has sought to investigate the differential effects of different types of bullying on paranoia.

Although the roles of these factors have been studied using non-clinical population (Ashford, et al., in press; Gracie et al., 2007), no empirical evidence is available in the clinical population in relation to childhood bullying. The current study aims to address the role of mediating variables, such as interpersonal sensitivity, anxiety, depression

and negative beliefs about the self and others in the development of paranoid thinking (see figure 1). The hypotheses to be tested are:

1. There will be a significant association between childhood bullying experiences and the development of paranoid thinking, specifically ideas of reference and persecution.
2. In the association between childhood bullying and paranoid thinking: anxiety, depression, interpersonal sensitivity, negative beliefs other-self, negative beliefs self-self, and negative beliefs self-others will be the mediators.

- ***Predictors:***

The predictors will be direct aggression and indirect aggression.

- ***Mediators:***

The mediators will be anxiety, depression, interpersonal sensitivity and negative beliefs about the self and others and others of self.

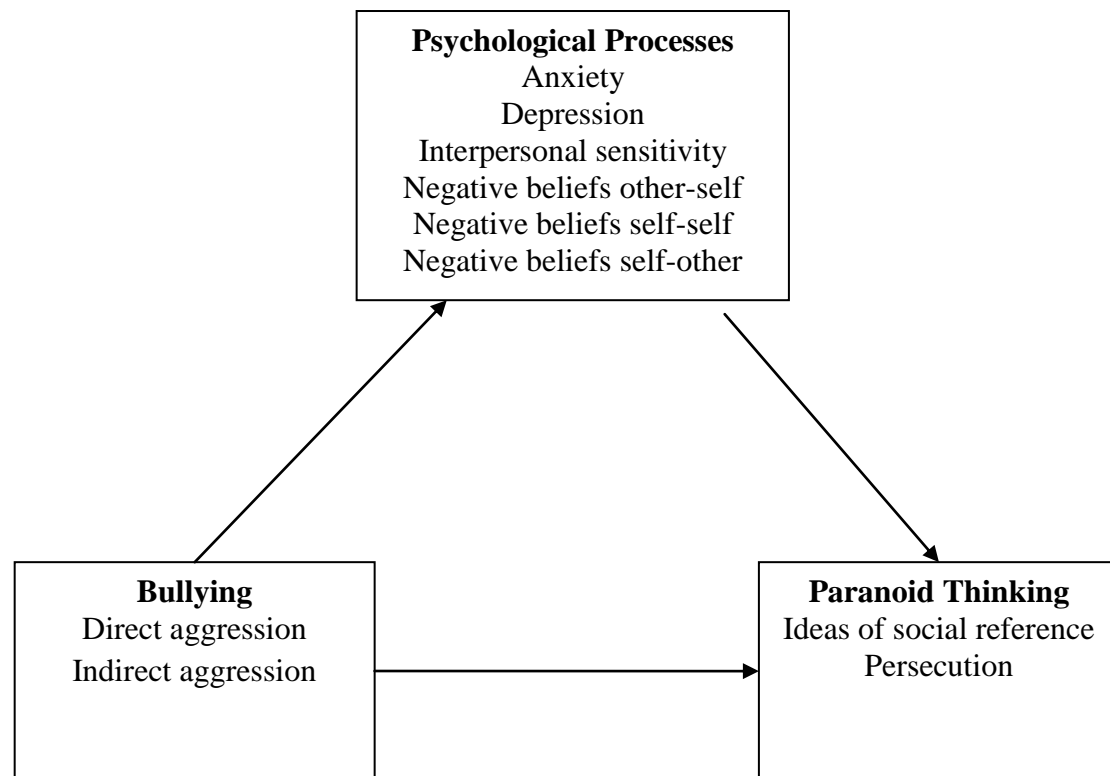
- ***Dependent Variables:***

Paranoid thinking, specifically ideas of reference and persecution will be the dependent variables.

3. There will be higher scores of childhood bullying, as measured by the Modified Direct and Indirect Aggression Scales (Modified DIAS; Owens, Shute and Slee, 2000), in the participants as compared to published findings in the normal population (Ashford, et al., in press).

Hypothesis 1 will be explored within a correlational design; hypothesis 2 within a mediational design; and hypothesis 3 will be explored using a between group comparison and using descriptive statistics.

Figure 1. Mediating Relationship between Bullying, Psychological Processes and Paranoid Thinking



2. Method

2.1 Design

A cross-sectional research design was employed in this study. Data were collected in a face-to-face interview with people with psychosis. Participants were asked to complete self-report measures of demographics, anxiety, depression, childhood bullying, paranoia, interpersonal sensitivity, negative beliefs about the self and others and others of self.

2.2 Participants

A total of 52 participants were recruited for the study. As the data did not fulfil the requirements of a parametric distribution, a non-parametric re-sampling method of ‘bootstrapping’ was utilised in order to do the mediation analysis. The bootstrapping method is recommended for small sample sizes by Preacher and Hayes (2008a), although the sample size should not be too small. Statisticians generally agree that a sample size of less than 10 is too small for the application of bootstrapping (Chernick, 1999). Good (1999) has suggested a minimum sample size of 50 for bootstrapping when the distribution is not normal, although there is evidence to suggest that a sample size of 30 has been deemed adequate to perform bootstrapping analysis (Demeyer, De Lissnyder, Koster, & De Raedt, 2012).

The participants with psychosis were recruited through the four Early Intervention for Psychosis (EIP) Teams in Hampshire.

2.2.1 Inclusion Criteria:

All people aged 18-35 years and under the care of the four Early Intervention for Psychosis (EIP) Teams in Hampshire were eligible for inclusion in the study. Those clients with a diagnosis of either schizophrenia or schizoaffective disorder will be eligible for participation.

2.2.2 Exclusion Criteria:

The clients who were too unwell/ highly distressed to participate in the study as assessed by a member of their care team; those who posed a risk to the data collector and those with intellectual disabilities were excluded from the study. In addition, individuals who were unable to consent or those who did not speak English were excluded from the study, as limited resources dictated that the use of an interpreter was not a viable option for this study.

2.3 Measures

2.3.1 Visual Analogue Scale (VAS; Freyd, 1923)

The participants were asked to do a Visual Analogue Scale before and after the administration of study questionnaires. This scale ranges from 1 – 10 where ‘1’ is the ‘least distress’ and ‘10’ is the ‘most distress’. This assessed the level of distress experienced by the participants as a result of completing the questionnaires. This was included for ethics purposes.

2.3.2 Demographic Information Questionnaire

This measure was constructed to collect information across the demographic categories of age, gender, and ethnicity.

2.3.3 The Green et al. Paranoid Thought Scales (GPTS; Green et al., 2008)

The GPTS is a 32-item self-report trait measure of paranoia. The questionnaire has been validated for use with both clinical and non-clinical populations. The GPTS contains two 16-item subscales that measure separate constructs of paranoid thinking; ‘ideas of social reference’ and ‘persecution’. Each item is rated on a 5-point likert scale. Reliability tests have demonstrated Cronbach’s Alpha scores of .98 for a non-clinical sample and .97 for a clinical sample, indicating extremely good internal consistency (Green et al., 2008). Concurrent and convergent validity has been investigated. Green et al. (2008) have reported the GPTS to be significantly correlated with the scores on the Paranoia Scale (PS; Fenigstein & Vanable, 1992).

2.3.4 Modified Direct and Indirect Aggression Scales (Modified DIAS; Owens, Shute and Slee, 2000)

A modified version of the original DIAS (Bjorkqvist, Lagerspetz & Osterman, 1992) will be used to assess bullying. The modified DIAS (Owens et al., 2000) is a self report measure, consisting of two sub-scales that measure direct aggression and indirect aggression. The scales of modified DIAS have demonstrated high levels of

internal reliability, ranging from .76 to .79 (Owens, Daly & Slee, 2005). The factor structure was explored by Earl and Burns (2009) who concluded that the modified DIAS is a measure of general experience of victimisation along with two distinct factors: direct and indirect aggression. As the original DIAS and modified DIAS have been primarily used in community settings and mostly with student populations, norms have not been developed for use with clinical populations. In the current study, as the participants will be asked to recollect upon their experiences of being bullied as a student at primary school and/or secondary school and not pertaining to their current experiences, this justifies the use of the modified DIAS with a clinical population. In addition, no other measure is available to use with adults that assesses different types of aggression and bullying and encompasses both physical and relational acts.

2.3.5 Interpersonal Sensitivity Measure (IPSM; Boyce & Parker, 1989)

The IPSM is a 36-item scale designed to assess interpersonal sensitivity about social rejection. Self-statements are rated on a 4-point likert scale, where '1 = very unlike me', '2 = moderately unlike me', '3 = moderately like me', and '4 = very like me'. The total score can range from 36 to 144, with higher scores reflecting higher levels of interpersonal sensitivity. Originally the IPSM included a total score and five subscale scores, namely, Interpersonal Awareness, Need for Approval, Separation Anxiety, Timidity, and Fragile Inner Self. However, there has been some controversy regarding the factor structure of the subscales, as discussed by Harb, Heimberg, Fresco, Schneier, and Leibowitz (2002). Taking this into consideration as well as use of this scale by previous researchers (e.g., Ashford et al., in press), only the total score will be used in the current study. The IPSM has been found to have good internal

reliability of .85. Concurrent validity of this scale was assessed, which showed that a clinical judgement of interpersonal sensitivity was highly correlated with the IPSM scores ($r = .72$) in a group of people with depression (Boyce & Parker, 1989).

2.3.6 Evaluative Beliefs Scale (EBS; Chadwick, Trower & Dagnan, 1999)

The EBS is an 18-item self reported measure for the assessment of negative evaluation beliefs across three dimensions; self-self (e.g., “I am a total failure”), self-other (e.g., “Other people are bad”), and other-self (e.g., “People see me as unlovable”). Each subscale consists of six items, with higher scores indicative of greater negative evaluations. The EBS has been reported to have excellent internal reliability which ranges from .86 to .92 across the three scales (Chadwick et al., 1999).

2.3.7 Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983)

The HADS is a 14-item self-report measure of anxiety and depression. It is scored on a 4 point likert scale. It has good internal consistency (Zigmond & Snaith, 1983; Allan & Martin, 2009) and good concurrent validity (Moorey et al., 1991; Bjelland, Dahl, Haug & Neckelmann, 2002). This measure was designed for a non-clinical population, but has recently been validated for a mental health population and the internal reliability estimates have shown that the Cronbach’s alpha for HADS (all items), HADS-Anxiety subscale (HADS-A) and HADS-Depression subscale (HADS-D) was .91, .90 and .80, respectively (Allan & Martin, 2009).

Bjelland, et al. (2002) conducted a review of the validity of the HADS and found that the HADS compared favourably to other similar scales for anxiety and depression, e.g., the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock & Erbaugh, 1961) and the State-Trait Anxiety Inventory (STAI; Spielberger, 1983).

2.4 Procedure

The managers of the EIP Teams were approached for their consent to contact the participants through their care coordinators. When the primary researcher initially presented the study to the team in the weekly MDT meeting and care coordinators considered participants, a list was constructed with those clients the team suggested should not be approached for participation in the study. Exclusion criteria included lack of capacity to consent, the client posing a risk to the data collector, the client's mental health being deemed too poor to be able to give informed consent or the client's use of English not being sufficient to understand the questions posed.

Each potential participant was presented with a participation information sheet and a consent form by their care coordinators and given 24 hours to two weeks to decide whether or not they would like to participate in the study. Nobody involved in the study approached the clients directly and asking for their participation, rather, the care coordinators (who were not part of the research team) delivered this information by taking the Participant Information Sheet and the Consent Form to the participants. This method of information delivery was suggested by the EIP research service user reference group. They expressed the opinion that hand delivered information by known staff would support discussion and informed reflection on participation. After

consent was obtained, a single appointment was made to see the participant at a resource centre or other health service property e.g. GP surgery or CMHT, and the six questionnaires were administered. Out of the total questionnaires, 47 questionnaires were administered by the Chief Investigator and 5 by the supporting data-collector.

The participants were asked to do a Visual Analogue as part of the Distress Management Protocol is discussed below. Once all the completed measures were handed in, the participants were given £5 in cash to thank them for their time. Participants were also given £1.50 towards their travelling costs. Completing the measures took approximately 30 – 45 minutes. Following the completion of the questionnaires, participants were verbally debriefed and given a copy of the debriefing statement. In the unlikely event that a participant became distressed, the Chief Investigator or supporting data collector was to follow the procedure outlined below in the Distress Management Protocol.

2.4.1 Distress Management Protocol

There was a clear protocol detailing how to respond to distress and assessment of how the client manages this distress in the unlikely event that it continued following the data collection session.

The participants were asked to do a Visual Analogue Scale which helped the data collector in assessing the level of distress experienced by the participants and take the necessary courses of action outlined below.

- Should the need arise, and the care coordinator is not present, the care coordinator, the Clinical Research Supervisor or the EIP duty worker will be immediately available by mobile phone.
- If the participant is an EIP client and would like a telephone call to be made to the Clinical Research Supervisor or their EIP care coordinator to facilitate further discussion on how they are feeling and how they can cope, this will be made when the client is still with the researcher.

Further details on the distress management protocol include:

- To give the participant time to express distress;
- For the researcher to respond empathically to their distress;
- To ask the participant if there is anything that the researcher can do to ease their distress (e.g. give them time to calm down; spend time discussing a different topic);
- To ask the participant how distressed they are feeling when they are about to leave the session;
- To ask the participant how they are going to deal with their distress;
- To ask the participant what their plans are for the rest of their day;
- To ask the participant if they would like support in dealing with this distress from EIP members of staff.

Research participants were seen at a resource centre or other health service property e.g. GP surgery or CMHT for the purpose of data collection. This will ensure further assistance is available in the building, should someone become distressed.

2.5 Ethical Considerations

Ethical approval for this research was obtained through University of Southampton Research Ethics Committee (see Appendix A) and sponsored and insured by the University of Southampton (see Appendix B). This study was also approved by the National Research Ethics Service, Berkshire (see Appendix C) and the local research ethics committee that covers the Southern Health NHS Foundation Trust (see Appendix D). In addition, the EIP service user reference group's comments on the design, measures and participant payment method were taken on board. Due to the sensitive nature of some of the questions asked, participants were asked to do a Visual Analogue Scale to assess any distress caused. In addition, a comprehensive distress management protocol, detailed above, was followed to minimise and control for any distress experienced by the participants. In the end a verbal and written debrief was also provided.

3. Results

3.1. Data Analysis

Statistical Analysis was conducted using the Statistical Package for the Social Sciences (SPSS) version 19.0. Preliminary statistics were conducted to assess variable distributions and descriptive statistics were reported. The first hypothesis was tested using correlational analysis. The hypothesised mediational model was explored using the bootstrapping method. The third hypothesis was tested using the independent sample t-test. The Kolmogorov-Smirnov test was used to test the normality of the distribution of the research variables.

A number of different methods have been proposed to test mediation (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Amongst these, the most widely used method is the hierarchical multiple regression technique developed by Baron and Kenny (1986). As the current data were not normally distributed and the multiple regression analysis is particularly sensitive to violations of parametric assumptions (Pallant, 2001), the most appropriate method of testing mediation for the current data, the bootstrapping method was employed. Bootstrapping is a non-parametric test and violations of the parametric assumptions do not affect the mediation analysis. This method is considered to be particularly appropriate for small to moderate sample sizes (Efron & Tibshirani, 1993; Preacher & Hayes, 2004). In addition, it allows for the testing of multiple mediators simultaneously, appropriate to the current study (Preacher & Hayes, 2008).

3.2. Preliminary Statistics

Preliminary statistical analysis was conducted to test if the data for the final sample (52) conformed to the assumptions of normality. Kolmogorov-Smirnov test demonstrated that all the variables, with the exception of ‘persecution’ ($D(52) = .173$, $p < .001$), ‘other-self negative beliefs’ ($D(52) = .135$, $p < .05$), self-self negative beliefs’ ($D(52) = .183$, $p < .001$), and ‘self-other negative beliefs’ ($D(52) = .281$, $p < .001$) were normally distributed.

3.3. Demographic Characteristics

In total, 52 adults with psychosis participated in the study. A total of 180 potential participants, who fulfilled the inclusion and exclusion criteria, were initially approached for the study. Out of these, 57 (31.6%) agreed to participate in the study, and 52 (28.8%) actually participated. There was no missing data in the final sample of 52 participants. The demographic characteristics of the remaining sample are reported in Table 1. The majority of participants were male ($N = 31$, 59.6%), White British ($N = 45$, 86.5%) and with an average age of 25.65 years ($SD = 4.32$). Out of the total sample, the majority of participants were currently not in education ($N = 38$, 73.1%).

All participants completed a Visual Analogue Scale (VAS) before and after the administration of the study questionnaires. The mean distress score pre-administration was 3.85 ($SD = 2.37$), which remained unchanged post-administration. Out of the total participants, 13 (25%) participants’ scores increased from pre-administration to post-administration, 15 (28.8%) scores decreased, and 24 (46.2%) scores remained the

same. No participant experienced distress to a level they could not deal with and no participant required support from a member of staff from the EIP service.

Table 1: Demographic Characteristics of the Participants

Variable	Category	N	Frequency (%)
Gender	Male	31	59.6
	Female	21	40.4
Age (years) (M = 25.65; SD = 4.32; range = 18 – 36)	18 – 24	18	34.6
	25 – 34	33	63.5
	> 35	1	1.9
Ethnicity	White British	45	86.5
	White Other	3	5.8
	Black or Black African	1	1.9
	Asian Indian	1	1.9
	Asian Pakistani	2	3.8
Educational Status	Student	14	26.9
	Non-student	38	73.1

3.4. Descriptive Statistics for Research Variables

The descriptive statistics for the research variables are reported in Table 2. Anxiety and depression as measured by the HADS showed that the mean score for anxiety ($M = 9.83$, $SD = 4.85$) was higher than the mean score for depression ($M = 7.27$, $SD = 5.01$). Out of the total sample, 27 participants (51.9%) were currently experiencing clinical levels of anxiety and only 11 (21.1%) were experiencing clinical levels of depression.

In terms of bullying, approximately 96% ($N = 50$) of participants experienced both direct and indirect aggression in their childhood. Indirect aggression was the most frequently experienced form of bullying, with a mean score of 12.85 ($SD = 9.18$), compared to direct aggression ($M = 9.25$, $SD = 7.69$). Paranoid thinking was present in the majority of the sample, with 49 (94.2%) participants experiencing 'ideas of social reference' and 40 (76.9%) participants experiencing 'persecution'. The mean score for 'ideas of social reference' ($M = 34.04$, $SD = 15.22$) was higher compared to the mean score of 'persecution' ($M = 31.25$, $SD = 16.18$).

In terms of 'interpersonal sensitivity', all 52 (100%) participants experienced some level of interpersonal sensitivity to social rejection, with the mean score of 101.75 ($SD = 18.34$). The mean scores for the negative beliefs 'other-self', self-self, and self-other were 6.27 ($SD = 5.29$), 4.94 ($SD = 5.12$), and 2.02 ($SD = 3.14$), respectively.

Table 2: Descriptive Statistics for Research Variables

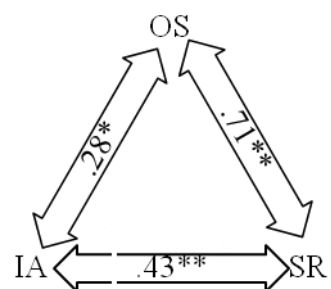
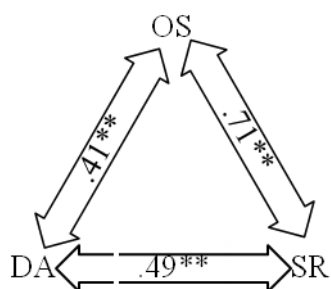
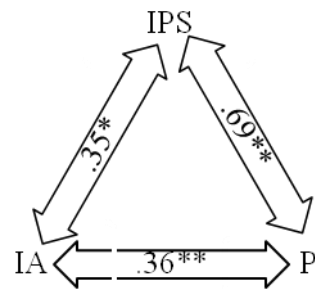
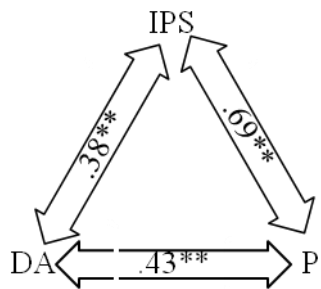
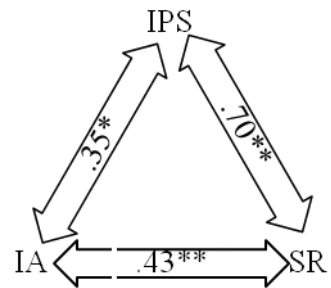
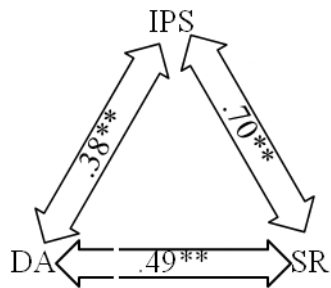
Scale	Research Variable	M	SD
HADS	Anxiety	9.83	4.85
	Depression	7.27	5.01
DIAS	Direct aggression	9.25	7.69
	Indirect aggression	12.85	9.18
GPTS	Ideas of social reference	34.04	15.22
	Persecution	31.25	16.18
IPSM	Interpersonal sensitivity	101.75	18.34
EBS	Other – self negative beliefs	6.27	5.29
	Self – self negative beliefs	4.94	5.12
	Self – other negative beliefs	2.02	3.14

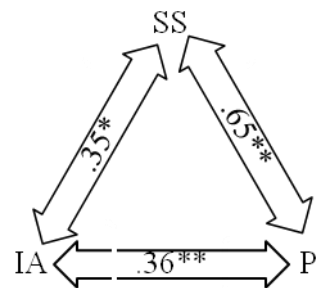
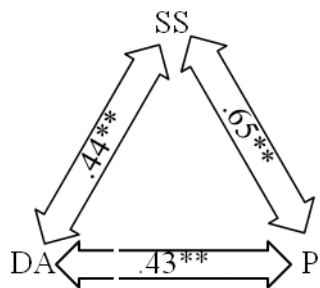
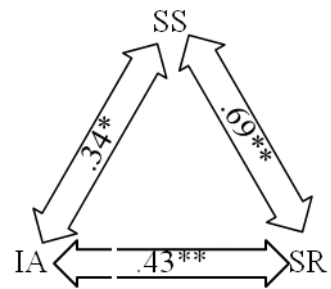
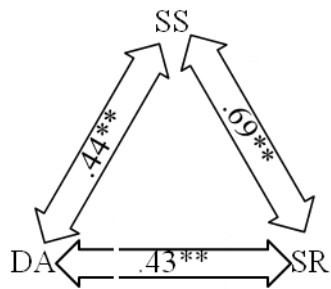
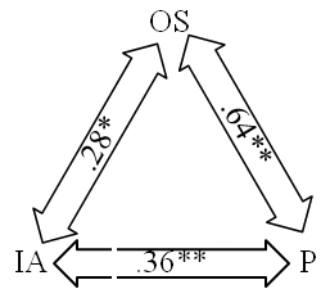
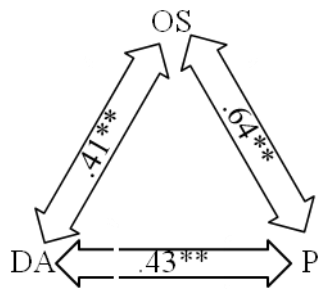
3.5. Correlations between Childhood Bullying, Paranoid Thinking, Interpersonal Sensitivity, and Negative Evaluation Beliefs

Pearson's correlation coefficients were calculated for variables which were normally distributed and Spearman's rho was calculated for variables not normally distributed.

The significant correlations are illustrated in Figure 2.

Figure 2. Correlation Diagrams Related to Hypothesised Models





Note. * = $p \leq .05$, ** = $p \leq .01$

Where, DA = Direct aggression; IA = Indirect aggression; SR = Ideas of Social Reference; P = Persecution; IPS = Interpersonal Sensitivity; OS = Other-self Negative Beliefs; and SS = Self-self negative beliefs.

The results demonstrated that greater levels of ‘direct aggression’ in childhood were associated with higher levels of ‘ideas of social reference’ ($r = .49, p < .001$) and ‘persecution’ ($r = .43, p = .002$) in adulthood. Similarly, greater levels of ‘indirect aggression’ in childhood were positively correlated with higher levels of ‘ideas of social reference’ ($r = .43, p = .002$) and ‘persecution’ ($r = .36, p = .011$) in adulthood.

No significant correlations were observed between bullying (direct and indirect aggression) and ‘anxiety’ or ‘depression’, although both ‘anxiety’ and ‘depression’ were positively correlated with ‘ideas of social reference’ and ‘persecution’. In terms of ‘negative beliefs’ the self – other negative beliefs had the least number of significant positive correlations with other variables.

3.6. Mediation Analysis

Preacher and Hayes (2008) method for multiple mediation: ‘bootstrapping’ was employed to conduct the mediation analysis. Bootstrapping is a non parametric resampling procedure and is the recommended method in cases where the assumption of normality of the sampling distribution is not met. For this reason, this method is increasingly preferred over other mediational tests, such as, the Sobel test (Hayes, 2009). In addition, bootstrapping is the appropriate analytic strategy when a hypothesis involves the effects of multiple mediators (Preacher & Hayes, 2008). This methodology involves bias corrected 95% confidence intervals (CIs) around a point estimate to calculate the indirect (mediating) effects of multiple mediators. The current analysis was based on 5000 bootstrapping resamples. The point estimate is the mean of the population from which the samples are drawn (Preacher & Hayes, 2004). The CIs show whether the indirect (mediating) effect is positive and different from

zero. If zero is outside the upper and lower limits of the CIs, then the parameter being estimated is taken as statistically different from zero at the alpha level corresponding to the CI (e.g., .05 for a 95% CI) (Hayes & Preacher, 2010). For the current data, four sets of bootstrap analyses were conducted. In each analysis, one of the two subtypes of childhood bullying, ‘direct aggression’ and ‘indirect aggression’ was entered as an independent variable. ‘Interpersonal sensitivity’, ‘other-self negative beliefs’, and ‘self-self negative beliefs’, were entered as mediators. As ‘anxiety’, ‘depression, and ‘self-other negative beliefs’ were not correlated with the independent variables, these were not included in the mediation analysis. In each analysis, ‘ideas of social reference’ or ‘persecution’ was entered as the dependent variable.

Table 3: Multiple Mediation (Bootstrapping) of the Indirect Effects of Bullying on Ideas of Social Reference (*N* = 52; 5000 bootstrap samples)

Independent variable	Mediator variable	Point estimate	BCa* 95% Confidence Intervals	
			Lower	Upper
Direct aggression	Interpersonal sensitivity	.2741	.0333	.6546
	Other – self negative beliefs	.3794	-.1546	.9260
	Self – self negative beliefs	-.1588	-.8307	.3730
Indirect aggression	Interpersonal sensitivity	.2171	.0137	.5564
	Other – self negative beliefs	.2789	-.0490	.8029
	Self – self negative beliefs	-.0999	-.5941	.2657

Note. *BCa = bias corrected and accelerated bootstrapping confidence intervals which corrects for both median bias and skewness.

Table 4: Multiple Mediation (Bootstrapping) of the Indirect Effects of Bullying on Persecution ($N = 52$; 5000 bootstrap samples)

Independent variable	Mediator variable	Point estimate	BCa* 95% Confidence Intervals	
			Lower	Upper
Direct aggression	Interpersonal sensitivity	.1331	-.0729	.6145
	Other – self negative beliefs	.1824	-.3610	.7238
	Self – self negative beliefs	-.0434	-.5806	.4268
Indirect aggression	Interpersonal sensitivity	.1833	-.0568	.6771
	Other – self negative beliefs	.2405	-.5995	.9335
	Self – self negative beliefs	-.0617	-.7592	.6582

Note. *BCa = bias corrected and accelerated bootstrapping confidence intervals which corrects for both median bias and skewness.

As can be seen from Table 3 and Table 4, ‘interpersonal sensitivity’ mediates the relationship between ‘direct aggression’ and ‘ideas of social reference’, with a point estimate of .2741 and 95% CIs of .0333 and .6546. This result showed a mediation pathway as the 95% CIs do not contain zero. Similarly, ‘interpersonal sensitivity’ mediates the relationship between ‘indirect aggression’ and ‘ideas of social reference’, with a point estimate of .2171 and 95% CIs of .0137 and .8029. These significant mediating relationships are illustrated in Figure 3 and 4. ‘Interpersonal sensitivity’ was not found to mediate the relationship between ‘childhood bullying’ (direct and indirect aggression) and ‘persecution’ as the 95% CIs contained zero.

Figure 3. The Significant, Mediating Effect of Interpersonal Sensitivity on the Relationship between Direct Aggression and Paranoid Thinking

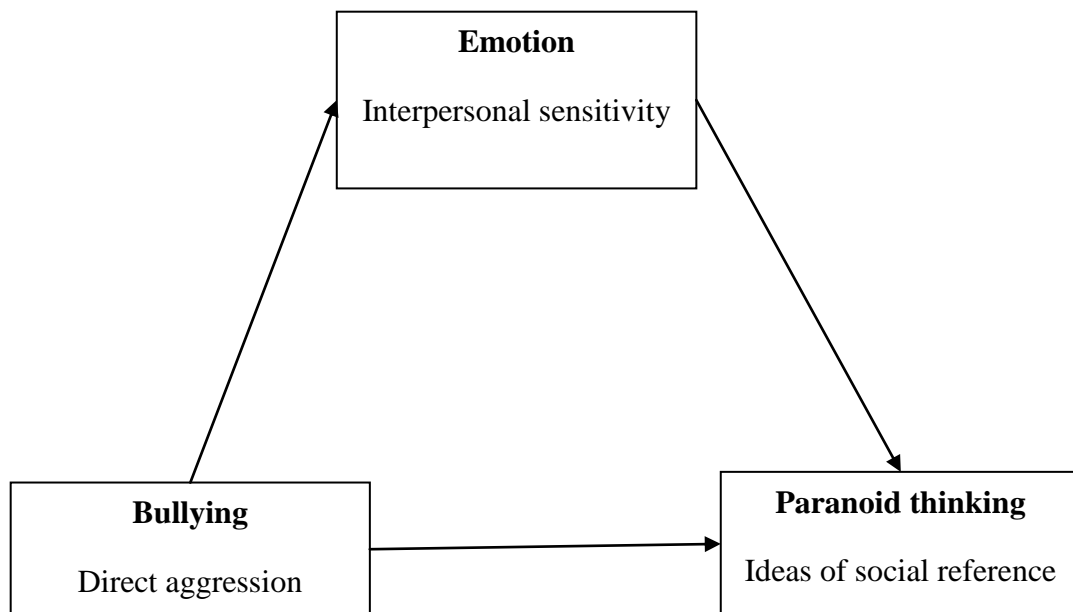
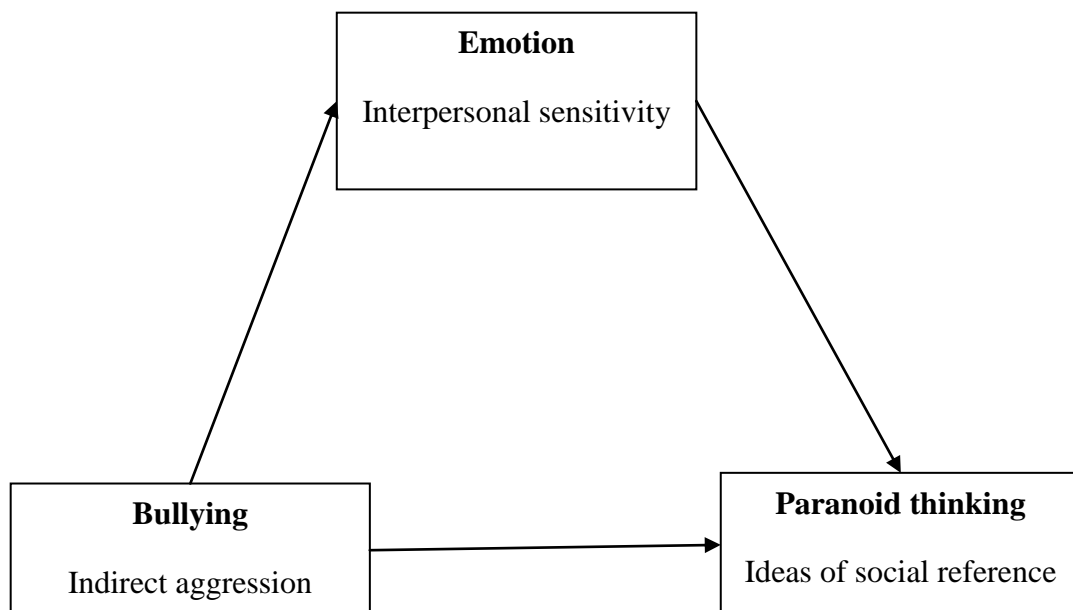


Figure 4. The Significant, Mediating Effect of Interpersonal Sensitivity on the Relationship between Indirect Aggression and Paranoid Thinking



3.7. Childhood Bullying in Clinical versus Non-clinical Population

Childhood bullying in the current clinical sample was compared to the general population (Ashford, et al., in press), illustrated in Table 5. An independent sample t test showed that the scores of direct aggression in the clinical sample ($M = 9.25$, $SD = 7.69$) were significantly higher than in the general population sample ($M = 6.14$, $SD = 4.99$), $t(185) = 3.24$, $p = .001$. Similarly, the scores of indirect aggression in the clinical sample ($M = 12.85$, $SD = 9.18$) were significantly higher than in the general population sample ($M = 10.51$, $SD = 5.97$), $t(185) = 2.04$, $p = .04$.

Table 5: Independent Sample t test to compare Childhood Bullying in Clinical v Non-clinical Population as Measured by the DIAS

Variable	Sample	Mean	SD	T	df
Direct Aggression	Clinical	9.25	7.69	3.24**	185
	Non-clinical	6.14	4.99		
Indirect Aggression	Clinical	12.85	9.18	2.04*	185
	Non-clinical	10.51	5.97		

Note. * = $p \leq .05$, ** = $p \leq .01$

As the current sample consisted of mainly males and the non-clinical sample consisted of mainly females (see appendix K), an Analysis of Covariance (ANCOVA)

was conducted to see whether the significant difference between the two samples on the scores aggression (both direct and indirect) was due to gender differences between the two samples. Gender was entered as a covariate in ANCOVA. The results indicated that there was a significant difference between the direct aggression scores of the two samples, while controlling for gender ($F(1) = 3.95, p = .049$). No significant difference was found between the indirect aggression scores of the two samples, while controlling for gender ($F(1) = 1.40, p = .23$).

Table 6: Analysis of Covariance to compare direct and indirect aggression scores in Clinical versus Non-clinical Samples by Gender

Source	Sum of squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>
Direct Aggression scores of clinical and non-clinical sample*Gender	153.62	1	153.62	3.95	.049*
Indirect Aggression scores of clinical and non-clinical sample*Gender	81.69	1	81.69	1.40	.23

Note. * = $p \leq .05$, ** = $p \leq .01$

4. Discussion

The study aimed to explore the relationship of childhood bullying and paranoid thinking in a clinical population, specifically investigating the role of mediating factors in this relationship. The study found that 1) there is an association between childhood bullying (both direct and indirect aggression) and paranoid thinking (ideas of social reference and persecution); 2) interpersonal sensitivity mediates the relationship between childhood bullying (both direct and indirect aggression) and ideas of social reference; 3) There were significantly higher scores of childhood bullying, as measured by the Modified DIAS (Owens, et al., 2000), in the participants as compared to published literature in the normal population (Ashford, et al., in press).

Although previous research has demonstrated a relationship between childhood trauma (physical, sexual, emotional abuse and neglect) and development of psychosis in adulthood, this study is one of the first to explore the role of childhood bullying in a clinical population. The finding that childhood bullying and paranoid thinking are associated is in line with the previous studies conducted in the general population (Ashford et al., in press; Campbell & Morrison, 2007; Schreier et al., 2009). In addition, this study replicated previous findings that found significant associations between paranoid thinking and anxiety, depression, ‘interpersonal sensitivity’, ‘other-self negative beliefs’ and ‘self-self negative beliefs’, with the exception of ‘self-other negative beliefs’ (Fowler et al., 2006; Freeman et al., 2008).

With regards to the mediating variables, interpersonal sensitivity was found to be the only significant mediator in the relationship between childhood bullying and ideas of

social reference (Freeman et al., 2008). Interestingly, anxiety was not found to mediate this relationship. This is in line with one previous study (Ashford et al., in press) but contrary to the findings of Freeman and Fowler's (2009) study. Ashford et al. (in press) offered an explanation for this discrepancy, that is, the earlier study explored the effect of a broad range of traumatic experiences and did not focus on any specific form of victimisation. In addition, the nature of childhood bullying may be different from other forms of childhood trauma, such as physical or sexual abuse. In the current study, depression was not found to be a significant predictor. This is in line with the previous studies (Freeman & Fowler, 2009). Both anxiety and depression were not found to be mediators, but interpersonal sensitivity was.

The finding that interpersonal sensitivity mediates the relationship between childhood bullying and paranoid thinking could be explained by the rejection sensitivity model (Levy, et al., 2001). There is research evidence to suggest that peer rejection, which is a form of bullying, is associated with the development of rejection sensitivity (Harb, et al., 2002). Moreover, it has been suggested that bullying and teasing experiences in childhood may lead to increased rejection sensitivity in adulthood (Butler et al. (2007), thus making individuals more vulnerable to experience paranoia in adulthood. Interpersonal sensitivity was found to mediate between childhood bullying and ideas of social reference but not persecution. This is understandable, considering the nature of ideas of social reference. If one had been socially excluded/picked upon then it is understandable to have ideas of social reference, whereas, persecution relates to the intentionality of harm.

One of the most interesting and perplexing finding of this study is that none of the negative beliefs acted as mediators. This finding is in stark contrast to earlier studies

(Freeman & Fowler, 2009). A possible explanation for this could be the temporal nature of some mediating variables, that is, some mediators may have less of an effect compared to other mediators, as a function of time (Shrout & Bolger, 2002).

The study found that the scores of direct aggression in the clinical sample were significantly higher than in the general population sample of Ashford et al. (in press). On this basis one could conclude that there are much higher levels of bullying in the clinical population, however, this conclusion must be somewhat tentative as the nonclinical sample in Ashford et al.'s (in press) study cannot be said to be representative of the normal population as it was a predominantly female group in higher education, whereas, the clinical sample there was a higher percentage of males compared to females. When gender was controlled for, the scores of direct aggression in the clinical sample were significantly higher than in the general population sample. There was no significant difference between the two samples in terms of indirect aggression scores. Therefore, higher direct aggression scores in the clinical sample may be due to more male participants.

In the current study, indirect aggression was the most frequently experienced form of bullying. This finding is in line with the earlier studies, where the majority reported experiencing indirect forms of bullying including threats of violence, belongings being damaged or their possessions taken away (Cawson et al., 2000).

4.1. Implications

Tentative implications may be drawn from these results as childhood bullying may be one of several other factors that are associated with paranoia. Clinically, mental health

professionals working with people with paranoia could incorporate the findings from this study into their therapeutic work. As there is evidence to suggest that asking about childhood trauma does not lead to any serious or permanent damage to the patient with mental health difficulties (Read et al., 2005), it might be useful for mental health professionals to gather information on childhood bullying in their clinical assessment procedures. This may assist in understanding clients' difficulties and formulating appropriate intervention plans. In order for this to be implemented, it is important to develop specific policy and procedures on asking about different types of childhood bullying. As interpersonal sensitivity was found to mediate the relationship between childhood bullying and paranoid thinking, it may be important for clinicians to assess this along with other relevant psychological factors. In addition, clinicians may focus on using CBT to work on the interpersonal sensitivity of their clients, if this is indicated to be an issue, through collaborative formulation. The finding that anxiety and depression were not mediators, shows that clinicians may need to look at the link between childhood bullying and paranoid thinking per-se and that treating anxiety or depression may not have any effect on paranoia.

As the findings suggest that indirect aggression scores were higher compared to the direct aggression scores and indirect bullying tends to be more subtle in nature (Olweus, 1993), there may be a need for anti-bullying programmes to assess and manage the occurrence of more indirect forms of bullying.

This study lends further support to the fact that asking about childhood abuse is not harmful to individuals with psychosis. The mean distress score before and after the administration of the study questionnaires, remained unchanged. This has important

research implications. Researchers should not shy away from exploring sensitive research questions with clinical populations.

4.2. Strengths and Weaknesses

This study has many notable strengths together with some weaknesses. Most importantly, the greatest strength of this study is that this is one of the first to explore the role of childhood bullying in a clinical population of people with psychosis, whereas, the previous research has been conducted in the general population. The clinical studies conducted previously have mostly concentrated on other forms of childhood trauma, such as, physical, sexual, and far less so emotional abuse and neglect. This study contributes to this already existing body of information by the addition of a specific form of childhood trauma that is, bullying and contributes to the psychological understanding of paranoid thinking.

An important ethical concern for the current study was the potentially distressing nature of the sensitive questions asked about childhood bullying from this vulnerable client group with psychosis. Therefore, a notable strength of this study was the substantial consideration given to the ethical dilemmas, in particular the implementation of a comprehensive Distress Management Protocol. In addition, the EIP service user reference group's comments on the design, measures and participant payment method were taken on board, adding to the strength of this study.

The majority of previous studies investigating childhood bullying have not used a valid and reliable measure to elicit bullying. Some have even resorted to asking about childhood bullying by only using a single dichotomous question. The current study uses a measure which is both valid and reliable, thus further increasing confidence in

the findings of the study. In addition, this study has focused on a specific symptom of psychosis: paranoid thinking, instead of investigating psychosis as a whole, as done in previous studies.

In terms of weaknesses, the cross sectional design of the study can make it difficult to draw firm conclusions regarding the temporal order of the relationships in question.

The questions about childhood bullying were retrospective in nature and the participants were all adults with current psychosis. However, it cannot be assumed that bullying always preceded the onset of psychosis, as some of the people may have shown unusual social behaviour in childhood or adolescence as a result of prodromal phase of psychosis, which may have led them to being bullied by their peers. In addition, although there is evidence available to show that people with psychosis can accurately recall their childhood trauma experiences, some degree of caution is needed in relation to the current study, as people who are vulnerable to paranoia may interpret social behaviour of others differently and may interpret ambiguous social situations in an overly negative light.

Another drawback of this study could be the selection bias as participants were recruited only from the EIP teams. Thus the severity of paranoia may not be at a degree that is expected from more long-standing cases of paranoia. Due to stringent inclusion and exclusion criteria, the participants deemed appropriate by the care coordinators may not be in currently active psychotic state, thus may not be totally representative of individuals with psychosis as a whole. The sample predominantly consisted of White English participants and people from Black and ethnic minorities were under-represented. Furthermore, as the EIP teams care for people up to the age of 35, older people and people with chronic psychosis were also under-represented.

The study could have been strengthened by including a non-psychotic psychiatric control group as well as a healthy control group, although this was not possible due to the time restraints for the study.

4.3. Research Recommendations

As one of the first studies to explore childhood bullying in a clinical sample, future studies which are longitudinal in nature may help to provide further insight into the mediating variables in this relationship. In addition, it would be interesting to explore the role of hallucinations and look at the potential mediators in the relationship between childhood bullying and hallucinations.

As studies have indicated that the incidence of psychosis is significantly higher in African-Caribbean and Black African groups living in the UK than in the White British population (Cooper et al., 2008), it would be important to focus future research on the specific routes to psychosis, in particular exploring the role of different forms of bullying in this client population.

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Appendix A

Demographic Information Questionnaire

Demographic Information Questionnaire

Version 2 Date: 14/09/11

Gender: ☐ M ☐ F

Age:

Are you currently studying in a School/Sixth Form College/University?

☐ Yes ☐ No

Ethnicity:

White

☐ British

☐ Irish

☐ Other (please specify).....

Asian

☐ Indian

☐ Pakistani

☐ Bangladeshi

☐ Other (please specify).....

Black or Black British

☐ Caribbean

☐ African

☐ Other (please specify).....

Mixed

☐ White and Black Caribbean

☐ White and Black African

☐ White and Asian

☐ Other (please specify).....

Appendix B

Participant Information Sheet

Participant Information Sheet

Study title: The Relationship of Childhood Bullying and Paranoid Thinking in a Clinical Population: The Role of Mediators

Researchers: Khadija Chaudhry (Primary Researcher), Dr Nick Maguire & Dr Katie Ashcroft.

Ethics Number: 11/SC/0430

Version: 4

Date: 09.11.11

You are being invited to take part in a research study. Before you decide 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. If you are happy to participate you will be asked to sign a consent form.

What is the purpose of the study?

We are interested in investigating the emotional processes related to the development of paranoid thinking. Paranoid thinking is an experience that most people have. This research aims to explore how the childhood experiences of bullying and emotions impact on the development of paranoid thinking.

This research is being completed as part of the primary researcher's Doctorate in Clinical Psychology. The sponsor of this study, University of Southampton, will pay for including you in this study.

Why have I been chosen?

We have approached the managers of the Early Intervention for Psychosis Teams (Hampshire) and the Inpatient Ward at the Royal South Hants Hospital for their consent to contact all patients suffering from symptoms of Psychosis, through their respective care-coordinators and key workers in these services.

What will happen to me if I take part?

The researcher will make an appointment to meet with you at a resource centre or other health service property e.g. GP surgery or a Community Mental Health Team (CMHT) base to fill in some questionnaires. These questionnaires have been used many times before in similar research. These questionnaires will ask you some basic questions about yourself, e.g., your age; about your childhood experiences of bullying while you were in school and will have statements that you will be asked to rate how often these happen to you e.g., “Being called names”; emotional processes such as anxiety and depression e.g., “Worrying things go through my mind” and “I look forward with enjoyment to things”; some statements about how you might feel about yourself e.g., “I worry about the effect I have on other people” and some statements about paranoid thinking e.g., “I believed that certain people were not what they seemed”. In total you will be asked to complete 6 questionnaires, and it will probably take between 30 and 45 minutes to complete them. Once all the completed questionnaires are handed in, you will be given £5 in cash to thank you for your time. Should you wish, you could request your care-coordinator to come with the researcher for data collection.

Are there any benefits in my taking part?

This study will provide us with a greater insight into what emotions and beliefs may be involved in the development of paranoid thinking. The information we get may help clinicians to understand paranoid thinking which may support them to develop improved therapy programmes for people with paranoia.

Are there any risks involved?

Because the research may touch on some sensitive issues, it may be possible that you could get temporarily upset. If this happens you can choose to withdraw from the study and/or speak to your care-coordinator/key worker. Should the need arise, and your care coordinator is not present, the care coordinator and Dr Ashcroft will be immediately available by mobile phone. However, these questionnaires have been used in research in the past and those people who have filled them in have not had any difficulties.

Will my participation be confidential?

Yes. All the information about your participation in this study will be kept strictly confidential and in compliance with the Data Protection Act and the University of Southampton Policy. Personal information will not be released or viewed by anyone apart from the researchers involved in this project. If you wish to have your information shared with the EIP staff, then please make the researcher aware of this

after you complete these questionnaires. All the completed questionnaires will be kept in locked containers. Results of this study will not include your name or any other identifiable information. Your Consultant Psychiatrist will be informed of your participation in the study but participating in this study will have no consequence to the treatment you receive.

What happens if I change my mind?

Your participation is voluntary and you may withdraw your participation from this study at any time. Should you withdraw your participation, your treatment will not be affected. If you withdraw from the study at any point, any collected data on you will not be used for the study.

What happens if something goes wrong?

Any complaint about the way you have been dealt with during the study will be addressed. If you have a complaint about any aspect of this study, you should speak to the researchers first. If your complaint has not been dealt with satisfactorily and you wish to complain formally, you can do this through Martina Prude, Head of Research Governance, on (023) 8059 5058 e-mail mad4@soton.ac.uk.

Who has reviewed the study?

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and given favourable opinion by the National Research Ethics Service, Berkshire.

Where can I get more information?

If you would like more information now or in the future, please contact Dr. Katie Ashcroft on 023 8024 1350. Thank you for your help.

You will be given a copy of the Information Sheet and signed Consent Form to keep.

Appendix C

Consent Form

Consent Form

Study title: The Relationship of Childhood Bullying and Paranoid Thinking in a Clinical Population: The Role of Mediators

Researchers: Khadija Chaudhry (Primary Researcher), Dr Nick Maguire & Dr Katie Ashcroft.

Ethics Number: 11/SC/0430

Version: 3

Date: 14.09.11

Please initial the box(es) if you agree with the statement(s):

1. I have read and understood the information sheet dated 15.03.11 (version 2) for the above study. I have the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I agree to take part in this research project and agree for my data to be used for the purpose of this study. ☐
3. I agree to relevant professional involved in my care being informed of my participation in the study. ☐
4. I understand my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected. ☐

_____	_____	_____
Name of Participant	Date	Signature

_____	_____	_____
Researcher	Date	Signature

When completed, 1 for participant; 1 for researcher site file; 1 (original) to be kept in medical notes.

Appendix D

Participant Debriefing Form

PARTICIPANT DEBREFING FORM

Study title: The Relationship of Childhood Bullying and Paranoid Thinking in a Clinical Population: The Role of Mediators

RESEARCHERS: Khadija Chaudhry (Primary Researcher), Dr Nick Maguire & Dr Katie Ashcroft.

ETHICS NUMBER: 11/SC/0430

VERSION: 3

DATE: 14.09.11

Thank you for taking part in our study and for providing us with valuable information. We are investigating the emotional processes related to the development of paranoid thinking. By taking part you are helping us to understand how the childhood experiences of bullying and emotions impact on the development of paranoid thinking. This may help clinicians to understand paranoid thinking which may inform them to develop improved therapy programmes for people with paranoia.

When the research is completed it will be submitted for publication and may be presented at conferences with other researchers and clinicians. We may also present our findings to other local mental health teams. The final report will not include ANY identifying information. A summary of these findings will be available upon completion of the study. If you would like a copy of this report, please inform me and I will be happy to forward a copy of this report to you.

If you have any concerns regarding your participation in our study, please do not hesitate to contact me or your care coordinator who will direct your query to me. Please contact me through my supervisor Katie Ashcroft on: katie.ashcroft@hantspt-sw@nhs.uk.

Many thanks

Khadija Chaudhry

Trainee Clinical Psychologist

Appendix E

Letter to Consultant Psychiatrist

LETTER TO CONSULTANT PSYCHIATRISTS

Study title: The Relationship of Childhood Bullying and Paranoid Thinking in a Clinical Population: The Role of Mediators

RESEARCHERS: Khadija Chaudhry (Primary Researcher), Dr Nick Maguire & Dr Katie Ashcroft.

ETHICS NUMBER: 11/SC/0430

VERSION: 2

DATE: 14.09.11

Dear Colleagues,

Patient name:.....D.o.B:.....

We are conducting the above questionnaire study with patients who have symptoms of Psychosis. Your patient has agreed to participate and the Participant Information Sheet supplied to them is attached for your information.

This letter is simply to inform you of their participation and we are not asking for any direct involvement from you.

If you require further information, please contact the primary researcher on 023 8024 1350.

Sincerely,

Khadija Chaudhry

Trainee Clinical Psychologist

Appendix F

University of Southampton Research Ethics Committee Approval Email

From: ERGO [DoNotReply@ERGO.soton.ac.uk]

Sent: 19 April 2011 13:36

To: Chaudhry K.

Subject: Your Ethics Submission (Ethics ID:540) has been reviewed and approved

Submission Number: 540

Submission Name: The Relationship of Childhood Bullying and Paranoid Thinking:
The Role of Mediators

This is email is to let you know your submission was approved by the Ethics
Committee.

Please note that you cannot begin your research before you have had positive approval
from the University of Southampton Research Governance Office (RGO) and
Insurance Services. You should receive this via email within two working weeks. If
there is a delay please email rgoinfo@soton.ac.uk.

Appendix G

University of Southampton Research Governance Office Approval Letter

Ms Khadija Chaudhry
School of Psychology
University of Southampton
University Road
Highfield
Southampton
SO17 1BJ

18 July 2011

Dear Ms Chaudhry

RGO Ref: 8001

Project Title The Relationship between Childhood Bullying and Paranoid Thinking: The Role of Mediators

I am writing to confirm that the University of Southampton is prepared to act as Research Sponsor for this study under the terms of the Department of Health Research Governance Framework for Health and Social Care (2nd edition 2005).

http://www.dh.gov.uk/en/Aboutus/Researchanddevelopment/Researchgovernance/DH_400211

I would like to take this opportunity to remind you of your responsibilities under the terms of the Research Governance Framework Medicines for Human Use Act 2004 if conducting a clinical trial.

We encourage you to become fully conversant with the terms of the Research Governance Framework by referring to the Department of Health document which can be accessed at:

<http://www.legislation.gov.uk/ukxi/2004/1031/contents/made>

<http://www.legislation.gov.uk/ukxi/2006/1928/contents/mad>

The University of Southampton fulfils the role of Research Sponsor in ensuring management, monitoring and reporting arrangements for research. I understand that you will be acting as the Principal Investigator responsible for the daily management for this study, and that you will be providing regular reports on the progress of the study to the Research Governance Office on this basis.

Please also familiarise yourself with the Terms and Conditions of Sponsorship on our website:

[http://www.soton.ac.uk/corporateservices/rgo/media/TCSpons%20\(CTIMP\)%20V2%2022011.doc](http://www.soton.ac.uk/corporateservices/rgo/media/TCSpons%20(CTIMP)%20V2%2022011.doc)

[http://www.soton.ac.uk/corporateservices/rgo/media/TCSpons%20\(Non%20CTIMP\)%20V2%20022011.doc](http://www.soton.ac.uk/corporateservices/rgo/media/TCSpons%20(Non%20CTIMP)%20V2%20022011.doc)

In this regard if your project involves NHS patients or resources please also be reminded that you may need a Research Passport to apply for an honorary research contract of employment.

Information can be found on our website:

<http://www.soton.ac.uk/corporateservices/rgo/respassport/about.htm>

(...continued overleaf)

Please send us a copy of your NHS REC and Trust approval letters when available.

Please do not hesitate to contact me should you require any additional information or support.
May I also take this opportunity to wish you every success with your research.

Yours sincerely



Dr Martina Prude
Head of Research Governance
Tel: 023 8059 5058
email: rgoinfo@soton.ac.uk

Appendix H

University of Southampton Professional Indemnity Agreement Letter

Ms Khadija Chaudhry
School of Psychology
University of Southampton
University Road
Highfield
Southampton
SO17 1BJ

RGO REF - 8001
School Ethics Ref - 540 -
ERGO

18 July 2011

Dear Ms Chaudhry

Professional Indemnity and Clinical Trials Insurance

Project Title The Relationship between Childhood Bullying and Paranoid Thinking: The Role of Mediators

Participant Type:	No Of Participants:	Participant Age Group:	Notes:
Patients	74	Adults	

Thank you for forwarding the completed questionnaire and attached papers.

Having taken note of the information provided, I can confirm that this project will be covered under the terms and conditions of the above policy, subject to written informed consent being obtained from the participating volunteers.

Insurance will only be activated when we have received a copy of the Ethics Committee approval and you must not begin your project prior to this. Please forward a copy of the Ethics Committee approval letter as soon as it is to hand to complete the insurance placement.

If there are any changes to the above details, please advise us as failure to do so may invalidate the insurance.

Yours sincerely



Mrs Ruth McFadyen
Insurance Services Manager

Tel: 023 8059 2417
email: hrm@soton.ac.uk

cc File

Appendix I

National Research Ethics Service Committee South Central-Berkshire

Approval Letter

NHS
Health Research Authority

NRES Committee South Central - Berkshire

South West REC Centre

Whitefriars

Level 3, Block B

Lewins Mead

Bristol

BS1 2NT

Telephone: 0117 3421386

Facsimile: 0117 342 0445

06 December 2011

Miss Khadija Chaudhry
Trainee Clinical Psychologist
Taunton and Somerset NHS Trust
Doctoral Programme in Clinical Psychology
University of Southampton
34 Bassett Crescent East, Southampton
SO16 7PB

Dear Miss Chaudhry,

Study title: The Relationship of Childhood Bullying and Paranoid
Thinking in a Clinical Population: The Role of Mediators
REC reference: 11/SC/0430
Protocol number: N/A

Thank you for your letter of 02 November 2011, 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

NHS 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).

Non-NHS sites

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.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study 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>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

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
(None)		21 September 2011
Covering Letter	: detailing changes made from previous Unfavourable Opinion letter	14 September 2011
Evidence of Insurance or Indemnity		18 July 2011
GP/Consultant Information Sheets	2	14 September 2011
Investigator CV	: Chief Investigator	14 September 2011
Investigator CV	: Academic Supervisor	14 September 2011
Investigator CV	: Key Investigator - Katie Ashcroft	14 September 2011
Investigator CV	: Key Investigator - Elizabeth Collins	14 September 2011
Letter from Sponsor		18 July 2011
Other: Unfavourable Opinion letter from previous review		30 August 2011
Other: Participant Debriefing Form	3	14 September 2011
Other: Letter of Assurance from Supervisor		08 November 2011
Participant Consent Form	4	09 November 2011
Participant Information Sheet	4	09 November 2011
Protocol	3	14 September 2011
Questionnaire: Green et al Paranoid Thought Scales		
Questionnaire: Aggression Questionnaire		
Questionnaire: EB Scale		
Questionnaire: A Scale to Measure Interpersonal Sensitivity		
Questionnaire: Demographic Information Questionnaire		
Questionnaire: Auditory Hallucinations Questions		

Questionnaire: Visual Analogue Scale	1	14 September 2011
REC application	79965/249509/1/227	15 September 2011
Response to Request for Further Information		02 November 2011

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

Reporting requirements

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
- Notification of serious breaches of the protocol
- 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.

Feedback

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.

Further Information is available at National Research Ethics Service website > After Review

11/SC/0430	Please quote this number on all correspondence
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With the Committee's best wishes for the success of this project

Yours sincerely,



pp Mr David Carpenter
Chair

Email: rajat.khullar@nhs.net

Enclosures: *"After ethical review – guidance for researchers"*

Copy to: *Penny Bartlett, Southern Health NHS Foundation Trust*

Appendix J

Southern Health NHS Foundation Trust Research and Development Approval Letter

Research and Development Department
Academic Centre
College Keep
4-12 Terminus Terrace
SOUTHAMPTON
SO14 3DT

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Khadija Chaudhury
Doctoral Programme in Clinical Psychology
University of Southampton
34 Bassett Crescent East
SOUTHAMPTON
SO16 7PB

Dear Khadija

Study Title	The relationship of bullying and paranoid thinking in a clinical population: the role of mediators		
REC Reference	11/SC/0430	Trust Project N^o	SHT021
Protocol N^o	Version 3 dated 14 September 2011		

This letter provides the formal Southern Health NHS Foundation Trust approval required for your project to commence. Details of information that the R & D Office will require during the period of your research can be found within the enclosed researchers pack. Your project is now registered on the R&D database with identification number **SHT021**. It would be helpful if you could use this number on all correspondence with the R & D Office.

Please note that this trust approval (and your ethics approval) only applies to the current protocol. Any changes to the protocol can only be initiated following further approval from the ethics committee via a protocol amendment; the R&D office should be informed of these changes.

This approval is conditional on members of the research team either being substantively employed by the Trust or having appropriate Honorary Research contracts in place before they start data collection. Please contact the R&D Department to confirm requirements.

This letter also confirms that University of Southampton will act as Research Sponsor and will provide indemnity..

The conditions of this approval require you as Principal Investigator to ensure that the study is conducted within the Research Governance framework and I encourage you to become fully conversant with the Research Governance Framework (RGF) on Health and Social Care document.

Any breaches of the RGF constitute non-compliance with the RGF and as a result Trust approval may be withdrawn and the project suspended until such issues are resolved.

During the course of your study we will contact you regularly for self completed audits of the study. In addition we are required to site monitor 10% of projects and yours may be selected. Attached is a suggested format for the study/project file which will help to ensure that all the necessary documentation is in place and readily available.

Please do not hesitate to contact us should you require any additional information or support. May I also take this opportunity to wish you every success with your research.

With best wishes

Yours sincerely

Research & Development

Appendix K

Demographic and Personal Characteristics of the Non-clinical Sample

Table: Demographic and Personal Characteristics of the Non-clinical Sample (*N* = 135)

Variable	Category	<i>n</i>	Frequency (%)
Gender	Female	123	91.1
	Male	12	8.9
Age (years) (<i>M</i> = <i>X</i> ; <i>SD</i> = <i>X</i> ; range = 18-44)	18	33	24.4
	19	32	23.7
	20	47	34.8
	21	15	11.1
	22-44	8	5.8
Ethnicity	White British	104	77
	White Other	10	7.4
	White & Black Caribbean	6	4.4
	Indian	4	3
	Chinese	7	5.2
	Mixed Other	4	0.7

Appendix L

Descriptive Statistics for Research Variables of Non-clinical Sample

Table: Descriptive Statistics for Research Variables of Non-clinical Sample (N = 135)

Scale	Research Variable	M	SD
HADS	Anxiety	7.30	3.80
	Depression	3.23	2.96
DIAS	Direct aggression	6.14	4.99
	Indirect aggression	10.51	5.97
GPTS	Ideas of social reference	31.22	11.44
	Persecution	22.70	9.21
IPSM	Interpersonal sensitivity	94.06	14.59
BCSS*	Negative beliefs about self	3.13	3.14
	Negative beliefs about others	5.19	4.41

*BCSS = Brief Core Schema Scales (Fowler et al., 2006)