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An exploration of the role of attachment in the relationship between trauma and distress in psychosis

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Thesis Abstract

Background: Attachment literature indicates attachment status is related to trauma with associations between early trauma and insecure attachment. Links between psychosis and trauma have been established within the literature; however the precise nature of this relationship is still not fully understood. A systematic review was carried out to assess the state of the evidence pertaining to psychosis and attachment. Associations between insecure attachment and psychotic symptoms were identified. Other psychological correlates such as perceived parental care, attachment to services and interpersonal problems were found to relate to insecure attachment status. However due to the early stage of this area of research, small clinical sample sizes and heterogeneity of correlates investigated, firm conclusions cannot currently be drawn.

Aim: The aim of this study was to investigate the relationship between trauma, attachment, reflective functioning (RF) and distress for people with psychosis with a view to further understanding these links and the clinical implications.

Method: Participants with a diagnosis of psychosis were recruited and measures were completed with the principle investigator pertaining to trauma, attachment and distress in psychosis.

Results: The majority of the sample reported insecure attachment and low RF and there were high levels of general, and more specifically, interpersonal trauma within the sample. Results indicated that early interpersonal trauma was associated with higher levels of emotional distress. Exploratory mediation analyses implicated anxious attachment in mediating the relationship between interpersonal trauma and distress.

Discussion: The results indicate the need to consider early trauma histories and specifically interpersonal trauma and attachment in the context of emotional distress for people experiencing psychosis. Incorporating trauma and attachment based therapeutic approaches for people with psychosis is as relevant as it is for other trauma populations, where these approaches may be more routinely drawn on for formulation and treatment. Limitations of the methodological approach are considered along with suggestions for future research.

Chapter 1: Systematic review[1] [2]

1.1 Title page

Title: Attachment and psychosis: A systematic review of the literature

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[1] Produced according to submission guidelines of *Clinical Psychology Review* (see appendix 1 of thesis)
[2] Numbering of titles has been included in this review for continuity with the thesis but would not be included for submission. Additionally tables are included within text as per instructions in the *University of Edinburgh/ NHS (Scotland) Clinical Psychology Training Programme 3 year Full Time and Specialist Training Handbook* , but would be formatted for submission as per *Clinical Psychology Review* guidelines.

1.2 Abstract

A new body of research is beginning to form investigating relationships between attachment and psychotic phenomena in order to inform treatment. This article provides a systematic review of the evidence to date regarding the relationship between attachment and a number of psychological factors pertaining to psychotic experiences. An inclusive review of research literature was conducted on all articles published in English that employed a measure of psychotic experiences or used a psychosis sample and an empirical measure of attachment. In total 14 articles met inclusion criteria for review. Results of the review illustrate the early stage of this field of research and heterogeneity of study characteristics. Findings point to an association between insecure attachment and psychosis and other psychological factors that are also implicated within this relationship. This review draws attention to the utility of attachment theory in understanding psychotic phenomena, perceived parental care, trauma and engagement for people experiencing psychotic phenomena. However the review also highlights the need for future longitudinal studies with larger, more representative samples and replication of current findings. Limitations of the review are also considered in the context of the limited body of research at this stage.

Highlights:

- Large variations exist between study characteristics in this developing area of research.
- High levels of insecure attachment are evident in psychosis samples.
- Insecure attachment is linked to schizotypy in non-clinical samples.
- Perceived parental care appears to be related to insecure attachment style for people with psychosis.

Keywords: Attachment; psychosis; schizophrenia; systematic review

1.3 Introduction

The quality of the relationship a child has with their caregiver during early development influences how that child will relate to others and manage emotional experiences in adulthood (Bowlby, 1973). Thus an individual develops an attachment style in infancy which they carry through development into adulthood (Bowlby, 1979). Ainsworth, Blehar, Waters and Wall (1978) operationalised the theoretical attachment classifications in infants based on the infant's response to separation from its primary caregiver. A large scale study (Mickelson, Kessler & Shaver, 1997) investigated attachment styles in the general population in the USA through self-report (Hazan & Shaver, 1987) and indicated distributions of 59% secure, 11.3% anxious, 25.2% avoidant 4.5% unclassifiable attachment styles.

Currently there is a growing evidence base addressing the link between psychopathology and attachment style (Bowlby, 1973; Dozier, Stovall & Albus 1999; Dozier, Stovall-McClough, & Albus, 2008). For example Bayer (2003) identified secure attachment as acting as a buffer against adverse early relational experiences resulting in lower levels of depression than those with insecure attachment and similar psychosocial experiences. Bifulco, Moran, Ball, and Bernazzani (2002) and Bifulco, Moran, Ball and Lillie (2002) evidenced associations between insecure attachment styles and vulnerability factors to depression such as poor self-esteem, childhood adversity and poor support. Rosenstein and Horowitz (1996) investigated specific emotional regulation strategies based on attachment status and found that adolescents with avoidant attachment were more likely to have substance misuse disorders or antisocial personality disorders. Those with anxious attachment styles were more likely to have affective, borderline or schizotypal personality disorders.

The contribution that attachment theory can make to the understanding and treatment of psychosis has been a relatively recent development within treatment approaches for individuals with such a diagnosis (Gumley & Schwannauer, 2006). Current models of psychosis point to underlying affective, interpersonal and cognitive factors (Garety, Kuipers, Fowler, Freeman & Bebbington, 2001; Penn, Corrigan, Bentall, Racenstein & Newman, 1997), implicating disorders in attachment (Grotstein, 1985). Byrne and Morrison (2010) found that individuals at risk of developing psychosis identified significant difficulties in interpersonal relationships. This is relevant to treatment,

considering social relationships during illness have been indicated as an important predictor in overall outcome (Harvey, Jeffreys, McNaught, Blizard & King, 2007) and the formation of effective therapeutic relationships, both within and outwith formal psychological therapy, may be a key factor in treatment outcomes (Norcross, 2011).

Rankin, Bentall, Hill, and Kinderman (2005) postulated through accounts of parenting in people with psychosis that impaired relationships were a common feature in the history of patients with paranoia compared to controls. In addition associations have been found between poor parental relationship quality, difficulties in close relationships and regulation of emotion in adulthood for people with psychosis (Tait, Birchwood & Trower, 2004). Difficulties in emotion regulation have been implicated in symptom formation and maintenance of psychotic symptoms (Westermann & Lincoln, 2010). As emotional regulation ability is postulated to develop on the basis of attachment organisation (Mikulincer, Shaver, & Pereg, 2003), this is further indirect evidence that attachment theory has a significant role to play in understanding psychotic symptomology.

Dozier and colleagues conducted several studies which assessed attachment for people with 'serious psychopathology' and how this impacted on treatment use (Dozier, 1990), familial over involvement (Dozier Stevenson, Lee & Velligan, 1991), attachment to case managers (Dozier, Cue & Barnett 1994) and reporting of symptomatology (Dozier & Lee, 1995). These studies were a useful starting point, but have small proportions of participants with psychosis. From the methodology and results it is unclear how much the samples overlap (Berry Barrowclough, & Wearden, 2007b) or the relative contribution of psychotic experiences to the outcomes.

Berry et al. (2007b) conducted the first review considering the contribution of attachment in psychosis, prior to which the focus had been on mental health in general. They highlighted the paucity of research and need for prospective studies with more representative populations.

1.3.1 Rationale for review

Better understanding of attachment related factors within models of psychosis will have implications for the way that psychological therapies are delivered with this client group (Schmitt, Lahti, & Piha, 2008). Currently cognitive behavioural therapy for psychosis is recommended as a treatment option which should be made available to everyone with a diagnosis of schizophrenia in England and Wales (National Institute for Clinical Excellence; NICE, 2009). Whilst this therapeutic approach takes some account of the influence of early experience on the development of dysfunctional beliefs and patterns of interpersonal relationships, better understanding the relevance of attachment history and trauma to the course of psychosis might support a different emphasis in therapy as indicated by Gumley and Schwannauer (2006).

1.3.2 Aims of the review

The aim of this systematic review is to assess the current evidence on the relevance of attachment organisation to the experience of psychosis and identify areas for further research. I aim to address the following questions:

1. What are the correlates that have been investigated as associated with attachment and psychosis?
2. How is attachment conceptualised as relating to psychotic symptomology and outcomes in psychosis?
3. What is the current state of evidence regarding attachment and psychosis?

1.4 Methodology

1.4.1 Search strategy

English language studies were identified through searches in the databases[3] Cumulative Index to Nursing and Allied Health Literature (CINAHL), Psychology and Behavioural Sciences Collection (PBSC), MEDLINE, psychINFO, Excerpta Medica database (EMBASE), Education Resources Information Centre (ERIC), Health Management Information Consortium (HMIC),Cochrane databases and PUBMED.

An inclusive search strategy that used categories covering psychosis and attachment within databases was implemented where possible[4] to ensure a comprehensive search of the available literature. The categories were then combined using Boolean terms to deliver a specific review of the literature according to the review question. If a categorical approach was not possible within the particular database[5] keywords[6] using a Boolean approach were used as recommended by Centre for Evidence Based Medicine (CEBM; 2009).

This search strategy yielded 3812 papers. 169 of these were duplicates, leaving 3643 papers in total.

1.4.2 Inclusion criteria

Studies were eligible for inclusion in the review if:

(i) They were peer reviewed original empirical work (i.e. not book chapters, conference abstracts, reviews).

(ii) A measure of psychotic experiences was employed (within an analogue or clinical population) or a psychotic sample was used (studies that included a

[3] From earliest available until 27th July 2011
[4] CINAHL , MEDLINE, psychINFO, EMBASE, ERIC, HMIUC
[5] PBSC, Cochrane, PUBMED
[6] ((psychos* OR schiz* OR hallucinat* OR paranoi* OR voice* OR delusion*) AND (attachment OR emotion* regulation))

psychosis subgroup but did not explicitly give outcomes for it separate from the overall sample were excluded).

(iii) An empirical measurement of attachment was employed resulting in attachment categories or dimensions statistically analysed with regards to the psychosis sample/ psychotic experiences and specific outcomes was the focus of the research.

1211 studies were excluded as it was evident from their title they were not peer reviewed empirical research. It was also evident that a further 1261 did not consider a specifically psychotic population or measure psychotic symptomology, and an additional 677 did not measure attachment. This excluded 3149 papers based on their titles, leaving 494 papers.

Abstracts were obtained for these 494 papers and reviewed sequentially as with the titles; 160 were not original empirical research, 45 were excluded as they did not consider psychotic symptoms specifically, 269 did not measure attachment. This resulted in 20 papers. Reference lists of these papers were reviewed for additional papers and eight papers were found to be relevant. Full text articles were obtained for these 28 papers and a further 14 were excluded. See figure 1.1 for a detailed breakdown of this process.

Relevant data were extracted from retained articles using a proforma developed for that purpose.

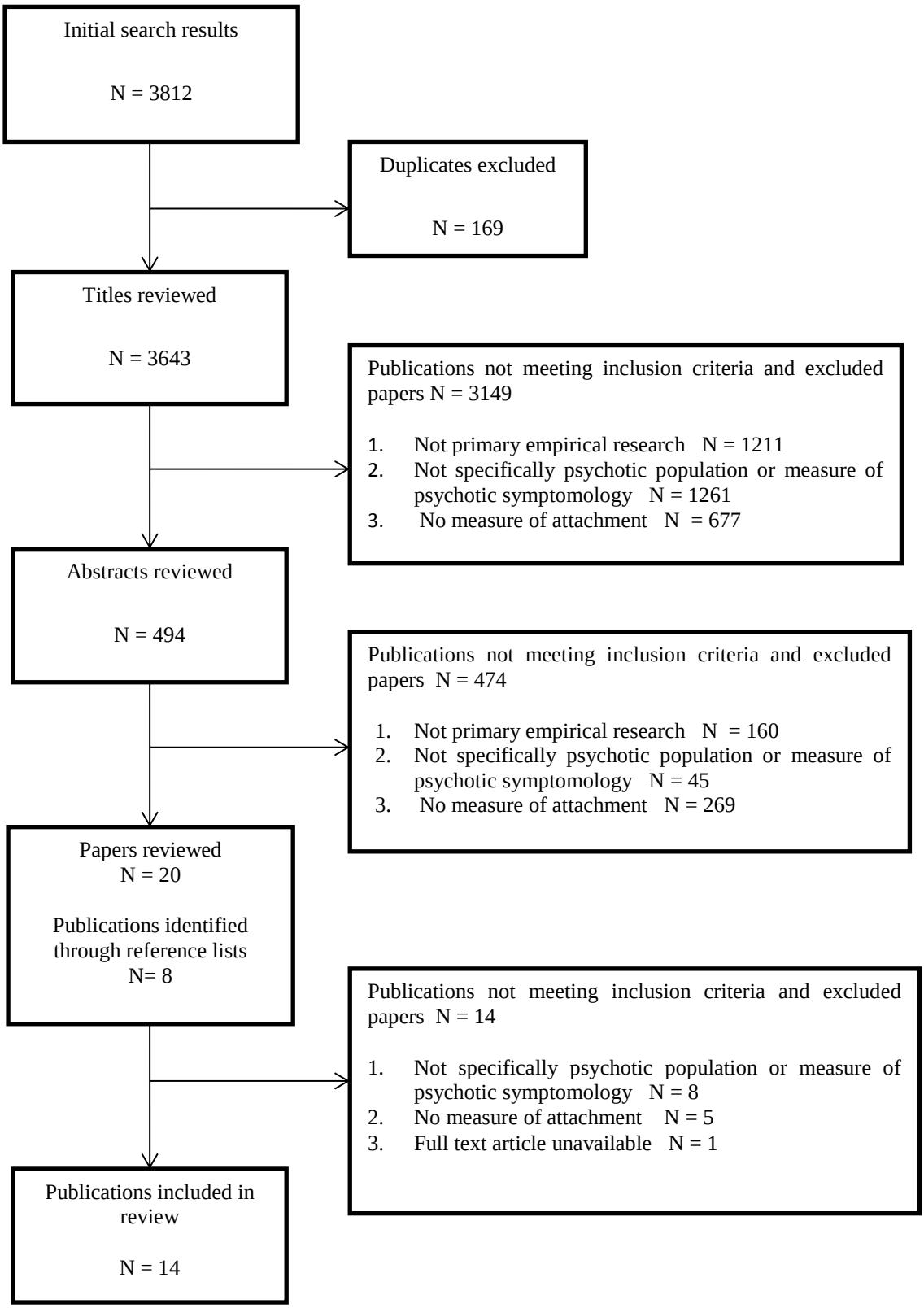

Figure 1.1. Search results and selection procedure

1.5 Results

Study characteristics are outlined in table 1.1 and will be briefly discussed before moving onto study findings and then discussion of the study quality.

1.5.1 Study Characteristics

Twelve of the studies were carried out in the UK, one in Canada (Couture, Lecomte & Leclerc, 2007) and one in Israel (Ponizovsky, Nechamkin, & Rosca, 2007).

Five cohorts were university students living in the community with no diagnosis of psychosis (Berry, Wearden, Barrowclough & Liversidge 2006; Berry, Band, Corcoran, Barrowclough & Wearden 2007a; MacBeth Schwannauer, & Gumley, 2008; Meins, Jones, Fernyhough, Hurndall, & Koronis, 2008; Pickering, Simpson & Bentall, 2008). The nine clinical studies comprised of cohorts with a psychosis diagnosis. Four of these used community based samples (Berry Wearden & Barrowclough, 2007c; Mulligan & Lavender 2010; Picken, Berry, Tarrier & Barrowclough. 2010; Tait et al., 2004), two combined inpatient and community samples (Berry Barrowclough & Wearden, 2009; Couture *et al.*, 2007) and two involved solely hospital based patients (Blackburn Berry & Cohen, 2010; Ponizovsky *et al.*, 2007). One study did not specify setting other than to say people were recruited from early onset psychosis services in two cities (MacBeth, Gumley, Schwannauer & Fisher, 2011).

Five of the studies used a cross-sectional non-clinical design (Berry et al., 2007a; Berry et al. 2006; MacBeth et al. 2008; Meins et al. 2008 & Pickering et al., 2008), six used a clinical cross-sectional design. One study followed a case control design (Ponizovsky et al., 2007), one used a historical cohort design (Couture et al., 2007) and one utilised a prospective cohort approach (Tait et al., 2004).

Table 1.1. Study characteristics

Authors	Year	N	Country	Setting	Study design	Eligibility criteria	Population	Age	Percentage female	Measures used	Attachment measures used
Berry, et al.	2007a	304	UK	University	Cross-sectional	None stated	Non- clinical	Median: 21 (range = 18-53)	78%	Oxford-Liverpool Inventory of Feelings and Experiences scale (O-LIFE; Mason et al., 1995). Adapted Trauma History Questionnaire (THQ; Green et al., 1996)	Psychosis Attachment Measure (PAM; Berry et al, 2006) Attachment History Questionnaire (AHQ; Pottharst, 1990)
Berry et al.	2006	323	UK	University	Cross-sectional	None stated	**Non-clinical**	Median: 21 (range 17-67)	72%	Paranoia scale (PS; Feinigstein & Vanable, 1992), Launay-Slade Hallucinations Scale (LSHS; Launay & Slade, 1981), Social Anhedonia scale (SAS; Eckblad,et al., 1982) Parental Bonding Instrument (PBI; Parker et al., 1979) Inventory of interpersonal problems (IIP-32; Barkham, et al., 1996) Self-concept Questionnaire (SCQ; Robson, 1989),	PAM (Berry et al., 2006) Relationship Questionnaire (RQ, Bartholemew & Horowitz, 1991)
MacBeth et al.	2008	213	UK	University	Cross-sectional	None stated	Non-clinical	Mean: 20.28 (range 17-33)	77.9%	PS (Feinigstein & Vanable, 1992) Launay-Slade Hallucination scale - revised version (LSHS-R; Morrison et al., 2002) Peters Delusion Inventory (PDI; Peters, et al., 2004) interpersonal inventory of personal problems (Horowitz et al., 2000) Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983)	Relationahip Styles Questionnaire, (RSQ; Griffin & Bartholemew, 1994)
Meins et al.	2008	154	UK	University	Cross-sectional	None stated	**Non-clinical**	Mean: 20.6 (SD 2.98, range 17-42)	56.5%	Schizotypal personality Questionnaire SPQ (Raine, 1991) Parental Bonding Instrument (PBI; Parker et al., 1979)	RQ , (Bartholemew & Horowitz, 1991)
Pickering et al.	2008	503	UK	University	Cross-sectional	None stated	Non-clinical	Mean: 20.9 (SD 5.22, range 18 – 63)	70%	Hallucinations - Revised Launay-Slade Hallucinations Scale (H-RLSHS; Bentall & Slade, 1985) Persecution and deservedness scale (PADS; Melo et al., in press). Negative events scale (NES; Corcoran et al., 2006) Levenson locus of control scale (Levenson, 1973) self-esteem rating scale (SERS: Nugent & Thomas, 1993	RQ , (Bartholemew & Horowitz, 1991)

										Beck Depression Inventory (BDI; Beck et al., 1996)	
Berry et al	2007c	58	UK	community	Cross-sectional	inclusion: ICD-10 schizophrenia, schizotypal or delusional disorder, informed consent (capacity for this), English speaking, monthly contact with MH services for 3 months. Exclusion: significant organic factors implicated in aetiology of psychosis	schizophrenia 81% (47) schizoaffective 19% (11)	Mean: 45.91 (SD 13.5)	36.2%		PAM (Berry et al., 2006)
Berry et al.	2009	80	UK	Community and inpatient	Cross-sectional	inclusion: ICD-10 Diagnosis of Schizophrenia, schizotypal or delusional disorder, informed consent, English speaking Exclusion: not able to give consent, not English speaking.	82.5% schizophrenia, 16.3% schizoaffective, 1.3% unspecified psychotic episode	Mean: 44 (SD 13.3)	33.7%	PBI (Parker et al., 1979) THQ (Green et al., 1996) Calgarey Depression Scale for Schizophrenia (CDSS; Addington et al, 1993).	PAM (Berry et al., 2006)
Blackburn, et al.	2010	78	UK	inpatient	Cross-sectional	None stated	69 schizophrenia, 5 bipolar, 3 substance misuse, 1 Asperger's	Mean: 39 (sd 13.78)	20.50%	Psychotic Symptoms Rating Scale (PSYRATS; Haddock et al., 1999) CDSS (Addington et al, 1990).	PAM (Berry et al., 2006) Services Attachment Questionnaire (SAQ; Goodwin et al., 2003)
Couture et al.	2007	96* Control 1 n=66; group 2 n=353	Canada	Community and inpatient	Historical case control	Inclusion: FEP between 15 – 35 years old, diagnosis on "schizophrenia spectrum", first episode in past 2 years Exclusion: none stated	No specific diagnosis all "schizophrenia spectrum"	Mean 23.7 (+/- 4.7)* control group 1: 26.0 (+/- 4.5) control group 2: 30.18 (+/- 8.7)	35.7%* control group 1: 36% control group 2: 50%	Brief Psychiatric Rating Scale (BPRS, Ventura et al., 1993) NEO Personality Inventory Five-Factor Inventory (NEO-FFI, Costa & McCrae, 1992) Client's assessment of strengths interests and goals - self report (CASIG, Wallace et al., 2001)	Attachment Style Questionnaire (ASQ; Feeney et al., 1994)
MacBeth et al.	2011	34	UK	Early onset service	Cross-sectional	Inclusion: FEP DSM-IV criteria for affective or non-affective psychotic disorder, presentation to services for the first time, positive symptoms of significant severity to require antipsychotic medication, capacity to consent Exclusion: substance misuse, head injury, organic disorder primary cause of psychotic symptoms	11 schizophrenia, 3 schizophrenoform disorder, 4 schizoaffective disorder, 2 persistent delusional disorder, 11 bipolar disorder, 1 mania with psychotic symptoms, 2 recurrent depressive	Mean: 23.32 (SD = 7.59)	42%	Positive and Negative Symptoms Scale(PANSS; Kay et al., 1987). Duration of Untreated Psychosis Interview (DUP: Beiseret al.,1993) Service Engagement Scale (SES; Tait et al,. 2002, 2004) World Health Organisation Quality of Life - Brief version (WHOQOL-BREF; WHOQOL Group, 1998) Premorbid adjustment scale (PAS; Cannon-Spoor et al., 1982)	Adult Attachment Interview (AAI; Main et al., 2002), Reflective Functioning (RF; Fonagy et al., 1998)

							disorder with psychotic symptoms				
Mulligan and Lavender	2010	73	UK	Community	Cross-sectional	Inclusion: hallucinations, delusions or cognitive problems associated with psychosis for at least 1 year, receiving care from community MH services Exclusion: No concurrent mood disorder/psychotic symptoms in context of mood disorder, no substance misuse, no significant cognitive impairment	All "psychotic symptoms"	Mean: women 48.64 (range 27-27, SD 14.50) Men 39 (range 21-67, SD 10.49)	24.66%	Health of the Nation Outcome Scales (HONOS; Wing et al., 1996) PBI (Parker et al., 1979) Recovery Style Questionnaire (RSQ; Drayton et al., 1998)	ASQ (Feeney,et al. 1994)
Picken et al.,	2010	110* Care cooordinators =81	UK	Community	Cross-sectional	Inclusion: ICD-10 psychotic disorder, Exclusion: Not stated	79% schizophrenia, 12% schizoaffective, 1% schizophreniform, 8% psychosis NOS AND alcohol misuse	Median: 38 (range 18-61)	10%	Informant trauma questionnaire (ITQ, Picken et al., 2010) Post-Traumatic Stress Diagnostic Scale (PDS; Foa et al., 1997) Working alliance scale (WAI; Horvath & Greenberg, 1989)	PAM (Berry et al., 2006)
Ponizovsky et al.	2007	30* Control group n=30	Israel	Inpatient	Case control	Inclusion: Diagnosis of schizophrenia, hospitalised, male Exclusion: not stated	100% schizophrenia	Mean: 38.4 (SD 10.2)	0%	PANSS (Kay et al., 1987)	Hazan and Shaver questionnaire (Hazan & Shaver, 1987)
Tait et al.	2004	50	UK	Community	Prospective cohort	Inclusion: ICD-10 diagnosis incorporating psychosis.. Exclusion: primary substance misuse disorder, mood disorder, organic mental health disorder.	All " schizophrenia or related disorders" (F20, F22, F23, F25)	Mean: 33.8 (SD 12)	38%	PANSS (Kay et al., 1987) PBI (Parker et al., 1979) Evaluative beliefs scale (EBS; Chadwick et al., 1999) self and other scale (SOS; Dagnan et al., 2002) SES (Tait et al., 2002 RSQ (Drayton et al., 1998)	Revised Adult Attachment Scale (RAAS; Collins, 1996)

Eligibility criteria varied and are detailed in table 1.1. The five non-clinical studies did not state inclusion or exclusion criteria (Berry, et al., 2007a; Berry et al., 2006; MacBeth et al. 2008; Meins et al. 2008; Pickering et al.,2008). Although all clinical studies stated diagnosis of psychosis as primary inclusion criteria there was variation in other inclusion criteria and whether these were stated within the methodology; six stated clear inclusion criteria pertaining to psychosis diagnoses classified by the Diagnostic and statistical manual of mental Disorders (4th ed. [DSM–IV], American Psychiatric Association, 1994) or the International Classification of Diseases (10^{th} ed. [ICD-10], World Health Organization, 1992) (Berry et al., 2007c; Berry et al, 2009; MacBeth et al., 2011; Picken et al., 2010; Ponizovsky et al., 2007 & Tait et al, 2004). Three studies (Couture et al, 2007; Tait et al., 2004; Mullighan & Lavender, 2010) used various tools to identify psychotic symptoms (e.g. Brief Psychiatric Rating Scale [BPRS], Ventura et al., 1993; Health of the Nation Outcome Scales [HONOS] delusions scale, 1996) but did not specify diagnosis.

Exclusion criteria were explicit in six of the nine clinical studies (Berry et al., 2007c; Berry et al, 2009; Blackburn et al., 2010; MacBeth et al., 2011; Mullighan & Lavender, 2010 & Tait et al., 2004). Schizophrenia was the most prevalent diagnosis throughout clinical studies where stated. Other diagnoses included schizophreniform, schizoaffective, persistent delusional and bipolar disorders and can be seen in table 1.1. Chronicity and description of clinical samples varied from first episode psychosis (FEP) samples (Couture et al., 2007; MacBeth et al., 2011) to so called 'stable' community samples (Mulligan & Lavender 2010) which means direct comparison of samples and drawing conclusions based on the outcomes is complex. In addition the diagnosis of schizophrenia itself has been argued to be lacking in reliability and validity (Romme & Hammersley, 2006) and a focus of specific psychosis rather than diagnosis may be more relevant which only three studies mentioned above did (Couture et al, 2007; Tait et al., 2004; Mulligan & Lavender, 2010).

Other characteristics recorded included duration of psychosis (Blackburn et al;, 2010, Tait et al., 2004), duration of untreated psychosis (MacBeth et al., 2011), age of onset (Berry et al., 2007c; MacBeth et al., 2011; Ponizovsky, et al., 2007), number of hospital admissions (Berry et al., 2009; Blackburn et al., 2010), socioeconomic status and education level (Mulligan & Lavender, 2012) which was gathered but not discussed

beyond stating there were no significant differences between the men and women in the sample.

In the 14 studies there were a total of 2106 experimental subjects. This was split between 1497 (range per study from 154 to 503) participants within the analogue studies and 609 (range per study from 30 to 110) in the clinical studies. Average ages for all studies ranged from 21 years (Berry et al., 2006; Berry et al., 2007a) to 46 years (Berry et al., 2007c). Ages ranged from 17 years (Berry et al., 2007a) to 67 years (Mulligan & Lavender, 2010) with average age for non-clinical studies around 20 years reflecting the typically undergraduate sample of these studies and significantly different to clinical samples (mean of 37 years across studies). Percentage of female participants ranged from 0% to 78% across all studies. Within the analogue studies the percentages were from 56% to 78% (mean of 71%), indicating participants were predominantly female and therefore not representative of a clinical psychosis sample (Aleman, Kahn & Selten, 2003). Clinical studies percentage female participants ranged from 0% to 42% (mean 27%) illustrating a significantly different gender profile between analogue and clinical studies, indicating the results need to be considered in this context.

Among all the studies 21 factors were measured to investigate their relationship to attachment, using 41 different measures/diagnostic tools/interviews (see table 1.1).

Overall eight different measures of attachment were used in the 14 studies (see table 1.2). The Psychosis Attachment Measure (PAM; Berry et al., 2006) was used by six studies, (Berry et al., 2006; 2007a, 2007c; 2009; Blackburn et al., 2010; Picken et al, 2010).

Table 1.2. Attachment measures

Attachment measure	Study	Details of measure	Attachment relative to	Factors/dimensions	Reliability (internal consistency [IC], test retest)	Validity
Psychosis Attachment Measure (PAM; Berry et al, 2006)	Berry et al. (2007a) Berry et al. (2006) Berry et al. (2007c) Berry et al. (2009) Blackburn et al. (2010) Picken et al. (2010)	16 item scale. Participants rate on a 4 point scale how much each item is characteristic of them.	Close interpersonal relationships	Underlying dimensions: Anxiety and avoidance	Berry et al. (2007a): Internal consistency (IC) alphas above .90 Berry et al. (2006): IC alphas above .80 Berry et al. (2007c): IC alphas .69-.86, test retest Intraclass coefficients (ICCs) after 1 month .56-.85 Berry et al. (2009) IC alphas .78-.83 Blackburn et al. (2010) IC alpha .70 Picken et al. (2010) IC alpha .70-.72 See Berry et al. (2006, 2007c) for further reliability	Berry et al. (2006) report good concurrent validity, and significant construct validity with other measures.
Relationship Questionnaire (RQ, Bartholemew & Horowitz, 1991)	Berry et al. (2006) Meins et al. (2008) Pickering et al. (2008)	Participants choose which of four prototypes of attachment expressed by way of vignettes describes them the most accurately. They then separately rate how similar they think are to each prototype on a scale of 1-7	Interpersonal relationships	Categorical: Secure, preoccupied (anxious), dismissing-avoidant, fearful-avoidant (Pickering et al., 2008 used this structure) OR Underlying dimensions: Anxiety and avoidance (Berry et al., 2006; Meins et al, 2008 & Pickering et al., 2008 used this structure)	Berry et al. (2006) – do not report -See Griffin and Bartholomew (1994) Meins et al. (2008) - do not report -See Griffin and Bartholomew (1994) Pickering et al. (2008)- do not report -See Griffin and Bartholomew (1994) Griffin and Bartholomew report acceptable reliability.	See Ravitz at al. (2010) who report convergence with other attachment scales and good evidence of discriminant, face and predictive validity.
Relationahip Styles Questionnaire, (RSQ; Griffin & Bartholemew, 1994).	MacBeth et al. (2008)	30 item scale. Participants rate on a 5 point scale how much each item is characteristic of the participant.	Romantic relationships	Underlying dimensions: Anxiety and avoidance	IC alphas of .68 - .78	See Griffin and Bartholomew (1994)
Attachment Style Questionnaire (ASQ; Feeney et al., 1994)	Couture et al. (2007) Mulligan and Lavender (2010)	40 item questionnaire. Items relate to negative and positive perceptions of self and others on a 6 point scale regarding level of agreement..	Quality of general relationships	A)avoidance of social relationships and B) preoccupation with being loved OR A)confidence, B) preoccupation with relationships, C) discomfort with closeness, D) need for approval, E) relationships as secondary (Mulligan & Lavender 2010 used this structure). Couture et al (2007) used both factor structures.	Couture et al. (2007) Reported IC alphas for this study - avoidance =.75; preoccupied = .77; OR - confidence =.67; preoccupied=.79, ; discomfort=.66; need for approval=.71 relationships as secondary=.66 Mulligan and Lavender (2010) internal consistency as a whole for measure; alpha = .73 (reported as between .54 and .76 for separate subscales)	See Feeney et al. (1994)

Adult Attachment Interview (AAI; Main et al., 2002).	MacBeth et al. (2011)	20 questions asked in a semi-structured interview format with probes allowing categorisation of an adult's attachment state of mind.	Parental attachment	Categorical: secure, dismissing, preoccupied (three organised categories) and disorganised/unresolved attachment.	Not given for current study, but report "good stability" from previous studies.	Not given
Reflective Functioning (RF) (Fonagy et al., 1998).	MacBeth et al., (2011)	Using RF coding framework to code AAI transcripts through an individual's understanding of thoughts, feelings, intentions and goals of self and others.	Parental attachment	Dimensional: From -1 (negative RF where narrative overly concrete, devoid of mentalisation or mental states of others grossly distorted) to 9 (exceptional RF where narrative displays evidence of an unusually complex, original or elaborate understanding of mental states).	Not given for current study other than to note *this coding framework has been previously used in studies of therapeutic change in complex psychopathology*.	Not given
Hazan and Shaver questionnaire (Hazan and Shaver, 1987)	Ponizovsky, et al. (2007)	Participants choose which of three prototypes of attachment expressed by way of vignettes describes them the most accurately. They then separately rate how similar they think are to each prototype on a scale of 1-5	General relationships	Categorical: Secure, anxious, avoidant	Report good internal consistency of Cronbach's alpha ranging from .84 to .88 for the dimensions. Good test retest reliability after a month.	See Hazan and Shaver (1987)
Revised Adult Attachment Scale (RAAS; Collins, 1996).	Tait et al.(2004)	18 items; 6 each on 3 subscales. Each item is rated 1-5 on how much the item is characteristic of them	Romantic relationships	Categorical: A) close - comfortable with closeness and intimacy in relationships, B). depend - degree to which individual can depend on others. C).	Report good internal consistency with all Cronbach's alpha coefficients over .85 for each subscale in their study.	See Collins (1996)

The PAM has a two factor structure of attachment avoidance and attachment anxiety. Good reliability and validity is indicated (see table 1.2) however this measure has only been used by one research group. The Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991) was used by three of the non-clinical studies (Berry et al., 2006; Meins et al., 2008; Pickering et al., 2008). Ravitz at al. (2010) report convergence of the RQ with other attachment scales and evidence of very good discriminant, face and predictive validity. Berry et al. (2006) report the relationship between the RQ and other measures such as perceived parental care being as expected, remaining significant when affect was controlled for. MacBeth et al. (2008) used the Relationship Styles Questionnaire, (RSQ; Griffin & Bartholomew, 1994) to assess attachment style with the underlying factors of anxious attachment and avoidance. Couture et al. (2007) and Mulligan and Lavender (2010) used the attachment style questionnaire (ASQ; Feeney, Noller & Hanrahan., 1994) which has several ways of being scored (see table 1.2). The Adult Attachment Interview (AAI; Main & Goldwyn, 1984) was used by MacBeth et al. (2011). The full four categories of attachment were only used for descriptive statistics as the researchers had limited skills in the four category approach. MacBeth et al. (2011) also used Reflective Functioning (RF) which operationalises the mentalisation construct (Fonagy, Gergely, Jurist, & Target, 2004). Tait et al. (2004) used the Revised Adult Attachment Scale (RAAS; Collins, 1996) which has three categories broadly defined as secure, avoidant and anxious attachment. Finally, the Adult Attachment Styles (AAS; Hazan & Shaver, 1987) was used by Ponizovsky et al. (2007) which elicits secure, anxious and avoidant attachment dimensions. Only one study considered all attachment classifications (Pickering et al., 2008) whereas other studies used the two overarching dimensions of anxiety and avoidance to classify people.

There is inherent difficulty in measuring attachment through self-report as these measures probe conscious thoughts towards relationships and cannot detect when unconscious processes may bias memories or reports of attachment (Ravitz, Maunder, Hunter, Sthankiya & Lancee, 2010). Self-report measures do not consider coherence of narrative which differentiates between attachment styles by tapping into unconscious processes in interview based measures (Hesse, 2008). In addition different concepts of attachment are measured by the variety of measures used in the studies.

1.5.2 Study findings

Within this section findings of the studies will be discussed for non-clinical and clinical studies in relation to correlates of attachment that were investigated. Both study types investigated psychotic symptoms, perceived parental care, trauma, interpersonal factors and distress. Interpersonal factors were considered by two non-clinical studies and only clinical studies investigated attachment in different relationships, attachment to services, Social functioning and personality characteristics, Mentallisation and Psychological adjustment/ recovery/ coping.

1.5.2.1 Symptoms

All non-clinical and some clinical studies investigated attachment as a predictor for schizotypy/psychotic symptoms.

Non-clinical

The non-clinical studies indicated a growing body of evidence to support specific relationships between attachment organisation and schizotypy in non-clinical samples; insecure attachment was found to predict some form of schizotypy characteristics by all studies. More specifically links between general insecure attachment and paranoia were found by MacBeth et al. (2008) and Pickering et al. (2008). MacBeth et al. (2008) found this relationship was mediated by interpersonal distancing. Pickering et al. (2008) found that this relationship was the only one to remain when associations between hallucinations and paranoia were controlled for. They also found this relationship was partially mediated by self-esteem, anticipation of threat and perception of others as powerful - suggestive of a mechanism where disruption in early relationships may confer vulnerability to paranoid beliefs.

Relationships between attachment anxiety and general positive symptoms were found by Berry et al., (2007a); specifically paranoia by Berry et al. (2006) and Meins et al. (2008) and hallucination proneness by Berry et al. (2006). Attachment avoidance was associated with higher levels of paranoia (MacBeth et al., 2008) and paranoia and

hallucinations (Berry et al., 2006). However Berry et al. (2006) found these links to be weaker than the equivalent relationships with anxious attachment. Attachment avoidance was also found to be associated with negative symptoms (Berry et al., 2006; Berry et al., 2007a; Meins et al., 2008).

In summary these studies indicate relationships between attachment anxiety and positive psychotic phenomena and between attachment avoidance and paranoia and hallucinations which tend to be weaker (Berry et al., 2006). Relationships between attachment avoidance and negative psychotic phenomena are also supported.

Clinical

In contrast to the non-clinical studies not all clinical studies investigated specific links between attachment and symptoms of psychosis. Of those that did MacBeth et al. (2011) found no relationship between any psychotic symptoms (assessed by the Positive and Negative Syndrome Scale for Schizophrenia [PANSS]; Kay, Fizbein & Opler, 1987) and attachment style within a FEP population. The only relationship Berry et al. (2009) found was between avoidant attachment and severity of psychotic symptoms, postulating people with higher level of symptoms have more problematic attachment styles.

Ponizovsky et al. (2007) found that male inpatients with a diagnosis of schizophrenia had significantly higher levels of insecure attachment when compared to controls. Within their study avoidant attachment style was correlated with positive and negative symptoms and anxious attachment style was correlated with only positive symptoms (as measured by the PANSS). Secure attachment style did not map onto any specific PANSS symptom dimensions. The results indicated that severity of general psychopathology was not associated with a specific attachment style. Those with an insecure attachment were significantly younger at onset than those with a secure attachment and had significantly longer hospitalisations compared to patients with a secure attachment.

All non-clinical studies found relationships between specific psychotic phenomena and attachment style (mainly anxious). Although higher levels of insecure attachment were found in clinical samples, specific styles did not map on to any specific symptomology other than anxious attachment style and positive symptoms within the Ponizovsky

study. Only Berry et al. (2009) found a link between symptom severity and attachment dimensions.

1.5.2.2 Perceived parental care

Several studies investigated the impact of perceived parental care (measured by the Parental Bonding Instrument [PBI] Parker, Tupling & Brown, 1997) on schizotypy and/or attachment.

Non-clinical

Berry et al. (2006) found correlations between higher levels of insecure attachment and both low levels of perceived parental care and higher levels of overprotection. However, when negative affect was controlled for these associations were no longer significant. Berry et al. (2007a) more specifically, found attachment anxiety was correlated with reported general parental overprotection and attachment avoidance was correlated with low levels of specifically perceived maternal care in their sample. They also found negative correlations between perceived maternal care and all schizotypy traits. The discrepancy in the findings of the two Berry et al. (2006; 2007a) studies may be related to the specificity of associations explained in the 2007 paper and also due to Berry et al. (2007a) not controlling for affect. Meins et al. (2008) found low perceived maternal care was the only predictor of overall schizotypy but paranoia was predicted by both low perceived maternal and paternal care. However, in this study, when attachment was controlled for none of the PBI factors predicted schizotypy indicating the relationship between perceived parental care and schizotypy was affected by attachment.

Results of these studies indicate links between attachment insecurity and perceived parental care are affected by affect and links between perceived parental care and schizotypy are affected by attachment. However these studies all address different relationships between schizotypy, attachment and perceived parental care so it is difficult to draw any firm conclusions. This is in contrast to clinical studies which addressed only the relationship between perceived parental care and attachment as discussed below.

Clinical

Berry *et al.* (2009) found an association between low levels of perceived parental care and avoidant attachment which was maintained when confounds were controlled. This association was found in a non-clinical sample (Berry et al., 2006) but when negative affect was controlled for it was no longer significant. Berry et al (2009) found an association between the experience of reported parental over-control and anxious attachment in adulthood was also found but not maintained when depression was controlled for. Similarly Mulligan and Lavender (2010) reported that reported high maternal overprotection was associated with high scores on anxious attachment related subscales; however affect was not controlled for. This study found more associations between attachment and perceived maternal care compared to paternal care, indicating that the maternal relationship may impact attachment style more than the paternal relationship. Tait et al. (2004) found strong significant correlations between attachment anxiety and reported parental abuse and lack of parental care, which was maintained when affect was controlled for.

It would appear findings related to perceived parental care and attachment in non-clinical and clinical studies are mixed. There seem to be links between perceived parental care and attachment which are not always maintained when affect is controlled for.

1.5.2.3 Interpersonal factors

Interpersonal factors were only considered in two studies (both non-clinical) relating to attachment. Berry et al. (2007a) found a stronger association between interpersonal problems and attachment anxiety than attachment avoidance which was maintained when affect was controlled for. Similarly, MacBeth et al. (2008) found positive associations between interpersonal problems and insecure attachment; however when HADS anxiety was controlled for the relationship between interpersonal problems and attachment anxiety became insignificant. In terms of schizotypy, MacBeth et al. (2008) found interpersonal distancing contributed additional predictive value along with attachment avoidance when predicting paranoia.

1.5.2.4 Trauma

Findings are mixed as to the specific relationship between trauma and attachment for people with psychosis as studies are very limited in number and there are methodological considerations; however interpersonal traumas appear to be relevant as a potential predictor of insecure attachment.

Non-clinical

Berry et al. (2007a) found no association between attachment organisation and the experience of trauma or interpersonal trauma. This was most likely due to the skewed data set with little reported trauma, typical of a non-clinical, student sample. However people who had experienced sexual abuse were most likely to have an avoidant attachment style. There was a significant group effect for attachment anxiety but not avoidance when comparing those reporting sexual abuse in childhood to those who did not.

Clinical

Berry et al. (2009) found high levels of attachment anxiety in those reporting childhood interpersonal trauma compared to those reporting other types of trauma. However overlap between these two groups made it difficult to ascertain the relative contributions of childhood and adult trauma. Furthermore, this association of attachment anxiety and trauma became insignificant when depression was controlled for. Similarly Picken et al. (2010) found that attachment anxiety was positively associated with the number of interpersonal traumas experienced and severity of PTSD. There was an inverse relationship between trauma incidence and avoidant attachment. It was postulated this could be due to under-reporting in people with an avoidant attachment style. In this study significant differences were found between reports of client trauma from care staff and clients with staff reporting significantly less trauma that clients. This study suggests that anxious attachment may be a maintaining or vulnerability factor in PTSD however confounds of drug and alcohol misuse are unclear. Also, Picken et al. (2010) did not control for affect so direct comparison of findings of these two clinical studies is not possible.

1.5.2.5 Distress

Non-clinical

Several non-clinical and clinical studies controlled for distress as a potential confound to other variables investigated in their studies (Berry et al., 2009; Blackburn et al., 2009; MacBeth et al., 2008; Pickering et al., 2008; Tait et al., 2004) which has been discussed in relation to each variable outlined in this section.

Clinical

Depression was used as a predictor of attachment in two clinical studies. Berry et al., (2009) found that depression was the only significant predictor of attachment anxiety within their study. However they state that because of links between depression and childhood trauma, controlling for depression may have obscured a genuine independent relationship between childhood trauma and attachment anxiety. Blackburn et al. (2010) found that depression was significantly and independently negatively associated with attachment to services, indicating that patients with depression may have specific difficulties in developing secure attachment to services.

1.5.2.6 Attachment in different relationships

Berry et al. (2007c) investigated attachment styles related to different relationships and found that general attachment anxiety and avoidance positively correlated with attachment in key worker and parental relationships. However there was significantly less anxiety in keyworker relationships compared to parental ones. There were significantly lower levels of attachment avoidance compared to attachment anxiety in parental relationships. This suggests that whilst attachment factors may be less intensely experienced in key worker relationships attachment factors are still relevant to the functioning of these relationships.

1.5.2.7 Attachment to services

Four clinical studies investigated attachment to services in terms of working alliance and service engagement, and generally indicate that attachment to services and insecure

attachment style appear to be related, however methodological limitations are evident. Blackburn et al. (2010) found that there were significant negative correlations between attachment to services and security of adult attachment organisation generally and also between attachment to services and depression. There was no significant correlation between attachment to services and severity of either hallucinations or delusions. Number of hospital admissions significantly negatively correlated with attachment to services and those sectioned under the Mental Health Act (1983) had significantly lower levels of attachment to services. Adult attachment, depression and section status all had significant independent associations with attachment to services. MacBeth et al. (2011) and Tait, et al. (2004) both specifically investigated service engagement using the Service Engagement Scale (SES; Tait, Birchwood & Trower, 2002) and found that insecure attachment style was associated with less engagement with services. Limitations of these studies are that neither of them differentiated insecure attachment style and the SES was completed by staff and not clients so could be biased.

1.5.2.8 Social functioning and personality characteristics

Couture et al. (2007) was the only study that investigated the relative contributions of personality characteristics and adult attachment to social functioning[7] in psychosis. They compared FEP and control samples (from previous studies) and found that symptom severity was unrelated to social functioning. Those with FEP had more 'problematic' attachment in peer relationships compared to the non-clinical controls and a greater tendency towards ambivalent attachment. There were personality characteristic differences with the FEP group scoring higher neuroticism, higher openness to experience, higher agreeableness and lower extroversion. The FEP attachment and personality factors contributed to variance in three domains of social functioning; quality of life, social and individual living skills and inappropriate community behaviour.

[7] Social functioning in this study was defined by the domains on the Client Assessment of Strengths Interests and Goals (CASIG; Wallace et al., 2001) instrument as social and independent living skills, inappropriate community behaviours, and quality of life.

1.5.2.9 Mentalisation

One study (MacBeth et al., 2011) investigated mentalisation and found that higher levels of reflective functioning (RF) were associated with secure attachment status, and that people with better RF had better psychological adjustment (measured by quality of life and social/academic levels of functioning prior to onset) to FEP. These findings are in keeping with theories of RF and its developmental importance for psychological adjustment, and also how it links with attachment organisation.

1.5.2.10 Psychological adjustment/ recovery/ coping

Two studies (Mulligan & Lavender, 2010; Tait et al., 2004) found a sealing over recovery style was more prevalent than an integrated style and associated with insecure attachment. Additionally Mulligan and Lavender found that men and women did not differ significantly in their recovery style to psychosis.

1.5.2.11 Summary

Within the 14 studies reviewed there is considerable variety in factors investigated related to attachment and psychosis. Non-clinical studies all investigated schizotypy with varying results. Perceived parental care was the second most investigated factor. Attachment was conceptualised as a predictor, general correlate and outcome variable depending on study. The variety of results and factors investigated make it difficult to come to any firm conclusions about the role of attachment in the current literature regarding psychosis at this point and will be further considered in the discussion section. Below the studies will be critically appraised in order to assess the level of the evidence.

1.5.3 Critical appraisal of study quality

Article quality was evaluated using a pro forma developed from guidelines from Scottish Intercollegiate Guidelines Network (SIGN, 2008) and Preferred Reporting

Items for Systematic Reviews and Meta-Analyses (PRISMA; Liberati et al., 2009). These criteria were piloted on several relevant studies and discussed between first and second rater and modified accordingly. This resulted in 12 criteria specific to the types of studies being evaluated as indicated in table 1.3

Table 1.3. Study quality gradings. Assessed using six ratings used by the SIGN (2008) guidelines in assessing quality: 'well-covered' (2 points); 'adequately addressed' (1 point); 'poorly addressed', 'not addressed', 'not reported' and 'not applicable' (all 0 points).

Criteria	Berry et al. 2007a	Berry et al 2006	MacBeth et al. 2008	Meins et al., 2008	Pickering et al., 2008	Berry et al, 2007c	Berry et al., 2009	Blackburn et al., 2010	Couture et al., 2007	MacBeth et al., 2011	Mulligan and Lavender 2010	Picken et al. 2010	Ponizovsky et al., 2007	Tait et al., 2004
Is previous relevant background literature discussed? (rationale)	2	2	2	2	1	2	2	2	2	2	2	2	2	1
Does the study question address a clear and appropriate question? (objectives)	2	2	2	2	2	2	2	2	2	2	2	1	2	2
Population – clearly described and justified?	1	1	1	1	1	2	2	2	2	2	2	1	2	2
Recruitment – procedure transparently explained?	1	1	0	1	1	2	1	1	1	1	1	1	1	1
How measures are collected – transparent?	1	1	1	0	1	2	1	1	2	2	0	0	1	1
Measures used – reliability and validity given?	2	2	2	2	2	2	2	2	1	2	2	2	2	2
Analysis methods appropriate?	2	2	2	2	2	2	2	2	2	2	2	1	2	1
Confounds addressed?	1	2	2	1	2	0	2	1	2	2	1	1	1	2
Overall results – clearly and logically explained?	2	2	2	2	2	2	2	2	1	2	2	1	1	2
Wider implications discussed?	2	2	1	1	1	1	2	1	1	2	2	1	2	2
Findings compared to other studies and discrepancies addressed?	2	2	2	2	2	1	2	1	1	2	2	2	2	2
Limitations addressed?	2	2	1	2	1	1	2	1	1	1	2	2	2	2
Overall score out of 24	**20**	**21**	**18**	**18**	**19**	**19**	**22**	**18**	**18**	**22**	**20**	**15**	**20**	**20**

Both authors graded all the papers and there was 100% agreement in 89% of ratings. The authors differed by one point on 15 ratings and on two in zero ratings. Total overall quality scores for each paper were within two points of each other (out of a potential 24 points). The 15 minor discrepancies in ratings (out of 144) were discussed and resolved.

1.5.3.1 Study justification (rationale and objectives)

All non-clinical studies bar one (Pickering et al., 2008) set out clear and share rationale and objectives for their investigations; to investigate attachment theory as a model relevant to explanations of development and maintenance of psychotic phenomena, alongside other relevant variables. In addition Berry et al. (2006) stated their objective clearly as investigating the validity of the PAM in assessing associations of attachment and psychotic symptoms. Pickering et al. (2008) used Dozier and colleagues' research to evidence a link between attachment and psychotic phenomena when the samples in these studies were not specifically psychosis and therefore the theoretical rationale was slightly limited and therefore this study had a lower score.

Seven clinical studies clearly stated rationale and objectives: to investigate the relationship between attachment and a variety of psychological factors in a psychosis sample due to paucity in the evidence base. Only one study had their sole objective as investigating direct links between attachment and symptoms (Ponizovsky et al., 2007). Tait et al. (2004) did not explicitly theoretically link attachment to recovery style and Picken et al. (2010) did not clearly describe their aims other than to "explore associations" between attachment, trauma and working alliance so both these studies had lower scores.

1.5.3.2 Methods (measure choice, population, recruitment and collection of measures)

Although measures were varied across studies they were all pertinent to the research questions posed and demonstrated adequate to excellent reliability and validity. Most studies (clinical and non-clinical) gave good descriptions of reliability and validity apart from Couture et al. (2007) who scored lower due to unclear reporting of the attachment measure.

Generally non-clinical studies were considered to adequately describe population, recruitment and collection of measures, because although all samples were clearly described as university students no inclusion or exclusion criteria were detailed by any non-clinical study. Details on how participants were selected and recruited were generally not clear and as such the potential for bias was hard to define. There was no level of detail on response rates in any of the studies. Recruitment was generally by email (Berry et al, 2006; Berry et al 2007; Pickering et al., 2008) but no detail was given on who was chosen or how. MacBeth et al. (2008) did not detail recruitment other than to say participants were given a pack which was returned to the researcher.

Of the clinical studies eligibility criteria were explicitly stated for most studies. However Picken et al. (2010) reported that their sample was a psychosis sample, but there was a likely confound of alcohol and drug misuse which was not fully clarified. Berry et al. (2007c) was the only clinical study to clearly explain both recruitment and data collection strategy to the extent it could be replicated. Couture et al. (2007) and MacBeth et al. (2011) clearly stated data collection procedures. However other studies were only considered to adequately describe recruitment and data collection strategy due lack of clarity pertaining to how it was decided on which potential participants were to be approached (Berry et al., 2009; Couture et al., 2007; MacBeth et al., 2011), it not being clear how participants were approached and lack of details on venue and patient support in data collection (Blackburn et al., 2010; Ponizovsky et al., 2007) or reference to another study for this information (Tait et al., 2004). Mulligan and Lavender (2010) and Picken et al. (2010) only adequately describe participants were approached and gave no information on data collection.

1.5.3.3 Results (appropriate analysis methods, confounds addressed and clear results)

All non-clinical studies used appropriate analysis methods for the research questions posed, and described these in detail. Nonparametric test use was discussed and used when required and alpha levels were corrected for multiple analyses in studies where appropriate (Berry et al., 2006; Berry et al., 2007a; Meins et al., 2008). Confounds were well covered in three of the non-clinical studies (Berry et al., 2006; MacBeth et al., 2008; Pickering et al., 2008). Berry et al., (2007a) and Meins et al. (2008) did not

take affect into account as a potential confound. All non- clinical studies clearly and logically explained their results.

Methods of analysis were deemed well described and appropriate for seven of the clinical studies (Mulligan & Lavender (2010) was the only study to mention requirement of a specific sample size (90) to evidence a medium effect at 80% power). However, Picken et al. (2010) analysis was only deemed adequately addressed due to the brevity of analysis in relation to the large number of measures used and the potential for further detailed analysis. Tait et al., (2004)'s analysis methods were deemed adequate as there was no discussion of multiple comparisons and results covered a range of analyses. Berry et al. (2009), Couture et al. (2007), MacBeth et al., (2011) and Tait et al. (2004) covered the issue of clinical and demographic confounds well. However the Blackburn et al. (2010), Mulligan and Lavender (2010), Picken et al., (2010) and Ponizovsky et al. (2007) did not acknowledge all possible confounding factors within their results. Berry et al. (2007c) did not address potential confounds.

Six of the clinical studies (Berry et al., 2007c; Berry et al, 2009; Blackburn et al, 2010; MacBeth et al., 2011; Mulligan & Lavender, 2010; Tait et al., 2004) covered their results section well and the resultant three adequately. This was due to confusing presentation of results with too many concepts at once (Couture et al., 2007), lack of thorough results (Picken et al., 2010) and general oversimplification of results which had potential confounding factors (Ponizovsky et al., 2007).

1.5.3.4 Discussion (Implications, comparisons and limitations)

All non-clinical studies compared their findings to other studies well. Three of these addressed limitations well (Berry et al., 2006; Berry et al, 2007a & Meins et al., 2008). However MacBeth et al. (2008) and Pickering (2008) did not address recruitment method and potential biases within. Berry et al. (2006; 2007a) discussed clinical implications in detail but MacBeth et al. (2008), Meins et al. (2008) and Pickering et al. (2008) did not.

Five clinical studies addressed the wider implications of their findings well (Berry et al., 2009; MacBeth et al., 2011; Mulligan & Lavender, 2010; Ponizovsky et al., 2007 &

Tait et al., 2004). Four studies were deemed to address wider implications adequately (Berry et al., 2007c; Blackburn et al., 2010; Couture et al., 2007 & Picken et al., 2010) with less detail. Six clinical studies compared their findings to other studies well (Berry et al., 2009; MacBeth et al., 2011; Mulligan & Lavender, 2010; Picken et al., 2010; & Ponizovsky et al., 2007 & Tait et al., 2004) and all of these apart from Macbeth et al., (2011) discussed limitations in detail. The resultant studies did not consider findings in relation to other studies in depth. With regards to limitations they either did not discuss limitations in depth (Berry et al., 2007c; Blackburn et al., 2010 & MacBeth et al. 2011) or acknowledge co-morbidity (Couture et al., 2007).

1.6 Discussion

1.6.1 Conclusions

1.6.1.1 Correlates investigated and conceptualisation of attachment

With regards to the aims set out at the start, this review has shown that a variety of correlates have been investigated in relation to attachment and psychosis in relatively few studies. Correlates are; symptoms, perceived parental care, trauma, interpersonal factors, attachment to others, attachment to services, social functioning, personality characteristics, distress and mentalisation. Within these studies attachment has been conceptualised as both predictor and outcome in relation to other variables. This coupled with the few and recent heterogeneous studies, over a third of which were non-clinical, illustrates the early stage of this field of research.

1.6.1.2 Current state of evidence

The results of this systematic review illustrate the heterogeneity of the research to date regarding attachment and psychological factors within psychosis. Although it is helpful to have larger scale non-clinical studies addressing the relationships between attachment and psychotic phenomena, very different sample characteristics make direct comparisons to clinical populations limited. All non-clinical studies had clear rationale and objectives but less robust methodology due to population choice and lack of clear procedures when compared to clinical studies.

All studies varied considerably in sample population, factors investigated, measures used, recruitment procedures and analyses employed, resulting in no two studies being directly comparable. Only two studies had control groups, and even then numbers were low and sample very specific, limiting ecological validity (Ponizovsky et al., 2007) or comparison groups were from other studies (Couture et al., 2009) limiting reliability of comparisons. Only one study evidenced a power calculation (Mulligan & Lavender, 2010) so explicit detail about predictive power of different psychological factors is not evident from most studies.

It would make sense that findings from high quality studies (Berry et al., 2009; MacBeth et al., 2011) should be given more weight. MacBeth et al. (2011) scored highest overall for study quality, so findings pertaining to no relationship between psychotic symptoms and attachment classification should be given more credence than other study findings with less rigour. However, this specific relationship was investigated with a FEP sample, unlike any other study reviewed and as such findings may not generalise to a broader psychosis population.

Findings indicating a relationship between anxious attachment and overprotective perceived parental care by Berry et al. (2009) were not maintained when affect was controlled for. This should perhaps be seen as more reliable than the finding of overprotection being related to insecure attachment by Mulligan and Lavender (2010) as the latter did not control for affect. However, small samples, variety of measures used and differing population demographics make direct comparisons problematic.

Picken et al. (2010) scored the lowest for quality due to lack of clear rationale, procedure and results. However, they acknowledged the limitations of their study well. Due to the exploratory nature of the research within this field and studies all acknowledging limitations well or adequately it seems unhelpful to rule out findings altogether based on relatively small discrepancies in quality criteria (table 1.3), although, caution should be taken in generalising findings.

In summary, in general the reviewed studies point to a relationship between insecure attachment and psychotic phenomena. However the nature of this relationship is one that requires considerable further study and exploration to clarify. The non-clinical studies tend to indicate relationships between specific psychotic phenomena and

attachment, particularly anxious attachment styles. Although higher levels of insecure attachment were found in clinical samples, specific styles did not map on to any specific psychotic phenomena and only Berry et al. (2009) found a link between symptom severity and attachment dimensions. As this was a comparatively high quality clinical study, this finding could be considered with more confidence than others. However as most of the research to date is undertaken with non-comparable populations looking at a wide range of variables using different methods of measurement, firm conclusions cannot be made at this stage.

1.6.2 Limitations of the studies

Studies generally scored relatively highly according to the quality criteria; however under powered samples and use of cross-sectional designs may have contributed to the heterogeneity of outcomes.

Use of non-clinical samples with very different demographics to clinical samples means that potential inferences between the two require caution. That is not to say clinically significant psychotic phenomena are not on a continuum with experiences in the general population, but more that demographic characteristics are broadly different. In addition measurement of concepts of schizotypy varied between non-clinical studies. For example Berry et al. (2006) used three very specific scales for measuring schizotypy (stable 1.1) thus investigating attachment-related differences in hallucinations, paranoia, and social withdrawal in a relatively narrow way, whereas schizotypy involves a much broader range of traits as investigated by Meins et al. (2008) with the Schizotypal Personality Questionnaire (SPQ; Raine, 1991). This could have also led to differences in findings. Even within clinical studies it was difficult to compare findings because of the variety of severity and homogeneity in different samples such as FEP, chronic male inpatient and diverse community samples.

Social desirability bias could be a confound of self-report measures used by studies pertaining to attachment. Only one study used a narrative measure of attachment (MacBeth et al., 2011) which unlike all the other measures of attachment in the studies was developed to detect unconscious states of mind as opposed to what is consciously reported by the individual, making findings potentially more valid. Additionally,

disorganised/unresolved attachment (measured by the AAI) was not investigated within any study in relation to psychosis. As this attachment dimension has been linked to higher levels of distress and psychopathology (Cassidy & Mohr, 2006) it would seem important to investigate it further with a psychosis population.

1.6.3 Limitations of the review

Several limitations of the current review shall be discussed. Firstly, inclusion criteria pertaining to solely English language studies could have been potentially restrictive. In addition inclusion of only studies that addressed psychotic phenomena meant that all Dozier and colleagues work was discounted which provided initial insights into psychiatric populations and attachment organisation. Exclusion of studies not using a qualitative measure of attachment could also have missed out detailed studies investigating attachment concepts within psychosis. Additionally, exclusion of unpublished studies may bias the accuracy of the review on account of 'file drawer' phenomena.

Secondly the exploratory nature of review means that the term 'psychological factors' was broadly interpreted as predictors and outcomes so assimilation of information in the current study was challenging. Being stricter in defining predictors and outcomes would have undoubtedly made for a more easily assimilated review. The disadvantage to this would be potential lack of eligible studies, which given the inclusive nature of the current review with only 14 studies, seems likely. A third related limitation was inclusion of studies with a variety of instruments measuring the same variable, highlighted by eight different measures measuring the concept of attachment. For example romantic attachment (AAS; RAAS; RSQ), quality of relationships rather than attachment processes (ASQ), peer attachment (RQ) parental relationships (AAI).This means that the concept of attachment has slightly different foci and theory (attachment states of mind verses attachment styles) in different studies. Fourth, this review was exploratory in nature and as such is based on cross-sectional, mainly correlational data, reflecting the early stage of this field of research. As such causal inferences need to be tentative about the relationship between attachment and other variables that were examined.

1.6.4 Implications for research

Limitations of this review should be considered in any further review in this area. However, given the paucity of studies found, inclusive nature of the review and approach to addressing quality criteria the likelihood of significantly different findings with a different methodological approach seems to be low. It would seem that addressing these issues in the primary research would be a more effective way of further understanding the role attachment has to play in understanding of psychological factors within psychosis populations. As such larger comparison group studies to see if attachment is manifested differently in psychosis populations to others would be informative. In addition longitudinal studies which might give clues as to the mechanisms between perceived parental care, attachment and psychosis would help inform clinical practice regarding intervention in psychosis. As is clear, this is a burgeoning field and a common perspective is still in the process of being evidenced. As such furthering the understanding of the impact of psychological factors in psychosis and identifying those at risk earlier is key.

1.6.5 Clinical implications

Several tentative clinical implications can be ascertained from the literature; mainly that although findings are mixed, attachment appears to be a relevant psychological variable for people with psychosis and as such as relevant to explore clinically as for any other clinical population. Due to the predominantly medical approach taken towards people with diagnoses incorporating psychosis (Bentall, 2009) this review highlights the need to consider other factors in assessment and understanding of symptomology and distress and levels of engagement. Associations between attachment, perceived parental care, interpersonal functioning and trauma illustrate the need for detailed formulation and treatment approaches which hopefully further robust research in this area can evidence and elucidate.

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Chapter 2. Bridging chapter

This chapter aims to briefly consider the evidence of the impact of trauma on psychological development in general as a background to more specifically taking a look at the evidence of trauma for people who experience psychosis. Rationale for the specifics of the current study will then be outlined drawing on information gathered from this chapter regarding trauma and psychosis and the previous chapter regarding links between attachment and psychosis.

2.1 A brief note on terminology

Throughout this thesis the term *psychosis* is used to define a range of experiences that people with a broad range of diagnoses (e.g. schizophrenia, schizoaffective disorder, bipolar disorder, depressive disorders etc.) experience such as hallucinations, delusions, and paranoia characterised by "gross impairment in reality testing" (Reber, 1995). A discussion of the current state of the evidence on the aetiology of psychosis is not within the scope of this study but models of psychosis and trauma will be discussed later within this chapter.

2.2 Trauma

2.2.1 Definition

Psychological trauma can be defined as "the experience of an uncontrollable event which is perceived to threaten a person's sense of integrity or survival" (Mueser *et al*., 2002, pp124). For the DSM-IV (American Psychiatric Association, 1994) diagnosis of Post-Traumatic Stress Disorder (PTSD) there is a requirement of a traumatic event to be defined as direct threat of death, severe bodily harm or psychological injury where the individual experienced distress, horror or fear at the time. Measures of trauma such at the Trauma History Questionnaire (THQ; Green *et al*., 1996) categorise types of trauma into; serious accident, disaster, illness, witnessing death, sexual events and physical events.

2.2.2 Prevalence

Reports of exposure to one traumatic event over the course of a lifetime in large scale representative samples range from 56% (Kessler *et al*., 1995) to 89.9% (Breslau *et al*., 1998). The Breslau study used a more inclusive measure of trauma using the DSM-IV, not the DSM-III-R definition as used in the Kessler study which may explain the higher prevalence rating. That said, these large scale representative sample studies suggest high levels of experience of at least one traumatic event within the general population.

Types of trauma prevalence tend to vary between men and women with women more likely to have been sexually assaulted and men more likely to have witnessed or been involved in a physical attack (Breslau *et al*., 1998; Kessler *et al*., 1995)

2.2.3 Impact

It is widely acknowledged that following such events psychopathology can develop, and with the addition of PTSD to the DSM-III in 1980 this became more formally acknowledged in psychiatry and the likelihood of the experience of trauma translating into a formal psychological disorder has been investigated. Rates of developing PTSD after a traumatic event appear to depend on the type of event with interpersonal events having a strong effect. Within the Kessler (1995) national comorbidity survey, 55% of people who reported a rape went on to develop PTSD and Breslau *et al*. (1999) reported 14% of people developing PTSD after the sudden unexpected death of a loved one. There are many factors that influence the development of trauma symptoms. In a review of risk factors for PTSD following a traumatic event Breslau (2002) noted the three factors most prevalent were:

1. Pre-existing psychiatric disorder
2. Family history of psychiatric disorders
3. Childhood trauma

Other factors identified as influencing an individual's response to trauma include an individual's previous life experiences which would be conceptualised as having informed their expectations of the world and themselves, and their subjective understanding of the traumatic event itself (Foa *et al*.,1999; Ozer *et al*., 2003; Yehuda,

2002). Ozer *et al*. (2003) highlight the need to further investigate the mechanisms by which risk factors and trauma symptoms interact.

2.2.4 Childhood trauma

Within the literature the term *childhood trauma* encompasses several different adverse experiences; childhood emotional and physical neglect, child sexual abuse (CSA) that may be a one off event or chronic, child physical abuse (CPA; again one off or chronic) and child emotional abuse. Each of these events can have the impact of severe trauma on a child. Within this section of the thesis the term *early trauma* will be used to encompass adverse childhood experiences which are experienced as traumatic such as the examples described above.

2.2.4.1 Prevalence of childhood trauma

The high rates of early trauma in the general population are recognised along with increasing awareness of the impact of this early trauma on adult functioning. Large national US studies indicate rates of CSA between 12.8% to 27% for women and 4.3 % to 16 % for men (Finkelhor, 1990; MacMillan *et al*., 1997) and rates of CPA of 21.1% women and 31.2% for men (MacMillan *et al*., 1997). A UK wide study which interviewed 2869 young adults indicated prevalence rates of 11% for CSA and serious maltreatment was experienced by 16% of the sample.

2.2.4.2 Childhood trauma and mental health

Relationships between early trauma and mental health problems are well documented (Horwitz *et al*., 2001; Read *et al*., 2003). Higher proportions of people who have experienced early trauma can be found in psychiatric populations. Previous surveys indicate levels of between 34% and 53% of individuals with a diagnosed severe mental illness reporting CPA or CSA (Greenfield *et al*., 1994; Mueser *et al*., 1998; Ross *et al*., 1994) which are significantly higher levels than the general population.

The pathways by which early trauma and mental health problems are associated and the various mediating factors are not yet fully understood due to the large number of human, psychological, social and biological factors involved. Early trauma does not

often (although it is acknowledged that it can) happen without other factors that are associated with increased likelihood of abuse being present, such as family instability, which have independent links to adult mental health (Mullen *et al*., 2003). However, when such confounds are controlled for, research has indicated the relationship between early trauma and psychopathology remains (Flemin *et al*., 1999; Kendler *et al*., 2000; Pettigrew & Burcham, 1997). It is not within the scope of this thesis to consider all developmental factors related to general mental health in detail. Due to the focus of the current research the proposed links between psychosis and trauma will be focused on below (section 2.2.5).

2.2.4.3 Validity of disclosure

The issue of reporting of early trauma in adulthood is a controversial one, especially pertaining to CSA recall in adulthood (Russell, 1983; Schacter *et al*, 1995; Stephen & Briere) with accuracy of reports often open to questioning, especially regarding recall among psychiatric patients (Read *et al*., 2005). It is suggested in the literature that there is no way of ensuring validity of reports other than acknowledging it is more common for people to under-report events than over report retrospective trauma (Kessler *et al*., 1995), specifically abuse (Dill *et al*., 1991; Read *et al*., 1997). In addition some research has indicated that people are less likely to report CSA when they are acute psychiatric inpatients, when their mental state might cause others to assume their accounts would be less reliable, compared to when they are well (Sparto *et al*., 2004).

2.2.5 Trauma and psychosis

The study of links between early trauma and psychosis is relatively recent (Read, 1997) with early trauma research having initially focused on other mental health disorders (Read *et al*., 2003).

2.2.5.1 Prevalence of trauma

The research available demonstrates that the prevalence of early trauma in samples of adults with psychosis is significantly higher than healthy controls or the general population (Read *et al.*, 2005, Schenkel *et al.*, 2005; Üçok & Bikmaz, 2007). In a FEP sample 94% of participants reported experiencing at least one event considered

traumatic with 70% reporting childhood trauma (Campbell *et al*., 2012). There are also higher levels of interpersonal abuse evidenced (regardless of age) for people with a diagnosis of psychosis in comparison to the general population (Meuser *et al*., 1998; Mueser *et al*., 2001). Bentall, *et al*. (2012) through further analysis of The Adult Psychiatric Morbidity Survey 2007 state that exposure to multiple traumas in childhood should be considered as an important cause of psychotic disorder with similar odds ratios reported as those linking smoking to lung cancer (Khuder, 2001).

2.2.5.2 The relationship between trauma and psychosis

Several large scale studies have explored the link between trauma and psychosis, brought together in a recent meta-analysis (Varese *et al*., 2012). The analysis included prospective cohort, large scale cross-sectional, and case-controlled designs and found early trauma was significantly associated with an increased risk for psychosis in adulthood with an odds ratio of 2.75 or above, regardless of study design. Furthermore this meta-analysis indicated that if the adversities examined as risk factors were removed from the population (assuming causality) there would be a 33% reduction in the number of people with psychosis. This recent meta-analysis lends robust support to the strong relationship indicated between trauma and psychosis. It also highlights the positive dose-response relationship between trauma and psychosis found by several individual studies, also noting exposure to one type of trauma increases the likelihood of exposure to other types of adversity.

An additional important finding of this analysis was that in studies where confounding factors (such as education, other psychopathology, general demographic variables) were controlled for the relationship between early trauma and psychosis remained, regardless of study deign. This indicates issues of methodological quality did not impact on the overall effect found within the analysis of the effect of trauma on psychosis.

Both a recent systematic review of the evidence (Bendall *et al*., 2008)'s and this meta-analysis (Varese *et al*., 2012) indicate that further controlled prospective studies within this area are needed to investigate mediating factors that may impact on the relationship between early trauma and psychosis. Recent research has begun to address this by finding that dissociation mediates the relationship between childhood trauma and hallucination proneness (Varese *et al*.., 2012), in clinical samples. This lends support to

the idea of mediating factors implicated in the trauma-hallucinations link and points to the need for further research to explore other factors.

2.2.5.3 Controversy about causality

It is perhaps pertinent to acknowledge that controversy surrounding the nature of the relationship between trauma and psychosis remains. Historically certain categories of psychopathology may have been linked to 'brain disease' and others to more developmental factors. With no definitive evidence regarding the aetiology of psychosis, although several models implicate developmental pathways, interpretation of findings can be influenced based on historical conceptualisations. For example Daly (2009) proposes that inaccurate history taking, poor understandings of phenomenology and lack of diagnostic clarity are the reason for the presumed causal relationship between trauma and psychosis. He writes that trauma could be implicated in "psychosis-like symptoms, perhaps through dissociation" but not "true psychosis". Cutajar *et al*. (2010) linked data from child abuse investigations to adult mental health service access in a specific geographical region. They verified child abuse was a risk factor in later diagnosis of psychosis or schizophrenia compared to a control cohort, thus addressing the issue of history taking and 'true' psychosis diagnosis.

2.2.5.4 Trauma, Psychosis and distress

Studies have indicated that people with chronic psychosis who report CSA or adult trauma will have higher levels of symptom severity, earlier age of onset, lower psychosocial functioning and higher levels of anxiety and depression than those with no trauma exposure (Lysacker *et al*;, 2001; Mulholland *et al*., 2008). Trauma is a clear predictor of clinically relevant outcomes such as levels of distress and admissions to psychiatric wards (Mueser *et al*., 1998, Read *et al*., 2005) and functional and social impairment (Gil *et al*.2009).

It is clear that links between trauma, early trauma, interpersonal trauma, psychosis and distress are evident but specific pathways are yet to be fully understood through further investigation of other factors. Models of psychosis and trauma will now be addressed in order to further explore/outline potential mediating factors and bring together rationale for the current thesis.

2.2.6 Models of trauma, psychosis and attachment

2.2.6.1 Traumagenic neurodevelopmental (TN) model

The TN model has been proposed (Read *et al*.,2001; Nemeroff, 2004) to understand the impact of trauma in psychosis. This model takes into account and assimilates biological, social and psychological factors associated with psychosis.

The TN model postulates that trauma affects brain development, thus leading to brain abnormalities which are implicated in psychosis. More specifically, stress induced glucocorticoid release leads to dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis and structural changes in the hippocampus (Teicher *et al*., 2003; Thompson *et al*., 2004). HPA axis dysregulation is thought to potentially impact on dopaminergic changes which are considered to be related to psychosis (Walker & Diforio, 1997). Thus according to this model prevalence of early trauma will have a dose effect in this system and increase likelihood of psychosis (Read *et al*., 2001; Nemeroff, 2004). In addition it will make the HPA axis more vulnerable to stress and thus increase likelihood of trauma impacting on psychosis.

2.2.6.2 Cognitive models of psychosis

Cognitive theory assumes a person's underlying belief system (and underlying schemas developed from previous experiences; Beck, 1976) informs their appraisals of an event which in turn are thought to guide behavioural and emotional responses to situations (Fowler *et al*., 2006).

Within this model exposure to early trauma has the potential to create a cognitive vulnerability, whereby individuals perceive themselves as powerless and others as powerful/threatening or malevolent and the world as threatening and unsafe (Birchwood & Chadwick, 1997; Birchwood, 2003). Coupled with negative schemas, trauma may lead to paranoid or delusional interpretations of anomalous experiences (Fowler *et al*., 1998; Fowler *et al*., 2006 Freeman *et al*., 2001; Garety *et al*., 2001). According to these models it is the interpretation of the experience including perceived lack of control (Bak *et al*., 2005) that influences the development of psychosis and trauma exposure creates a vulnerability to more psychosis orientated interpretations (Krabbendam, 2008).

Andrew *et al.* (2008) found that current trauma symptoms were a significant predictor of perceived malevolence of voices, indicating the significant effect of current trauma on beliefs about voices. Negative beliefs have also been indicated in mediating the relationship between trauma and paranoid ideation (Gracie *et al*., 2007)

2.2.6.3 Models of Attachment

Research to date specifically investigating psychosis and attachment is summarised in the systematic review in chapter one. Findings indicate relationships between insecure attachment and psychotic phenomena and insecure attachment and other correlates such as interpersonal trauma for people with psychosis. However findings are presented with the caveat that research in this area is at an early stage with all but two studies cross-sectional in design and small clinical samples. This does not mean findings are not valid; rather that further research needs to be carried out in order to ascertain causality and replicate findings in larger controlled and longitudinal clinical samples.

As discussed within the review, attachment style can be defined by narrative report by the AAI (Main *et al*., 2002) and self-report measures such as the RAAS (RAAS; Collins, 1996) and RQ (Bartholomew & Horowitz, 1991). Underlying dimensions of attachment anxiety and attachment avoidance indicated in the research bring together attachment style and Bowlby's Internal working models (IWMs) paradigm (Bartholomew and Horowitz, 1991; Griffin & Bartholomew,1994; Stein *et al*., 2002) and are indicated in figure 2.1.

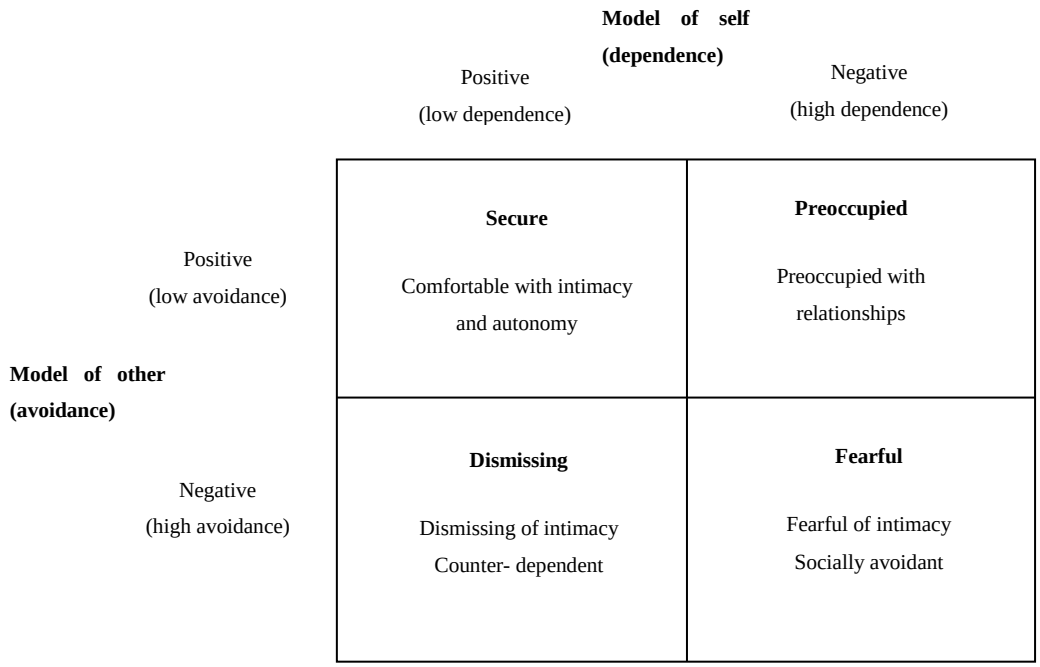

Figure 2.1 Model of adult attachment adapted from Bartholomew and Horowitz (1991, pp 229)

IWMs of attachment overlap with the paradigm of self and others in cognitive models of psychosis (Garety *et al*., 2001) in that they both focus attention and influence expectations and interpretations of interpersonal relating based on previous experiences (Platts *et al*., 2002). However, IWMs go further than cognitive models by way of explanation in that they relate emotional states to interpersonal relationships and belief systems (Collins & Allard, 2004). Thus there is an emphasis within attachment IWMs of relationships guiding self-beliefs and beliefs about others which has implications for understanding models of psychosis within a social cognition context. The application of attachment theory in this context could increase understanding of the role of trauma within psychosis; i.e. the differential effect of different types of trauma on beliefs of self and others, interpersonal relating (Crowell *et al*., 1999) and therefore on vulnerability to psychosis. Within this framework one would expect interpersonal trauma to have a significant impact on beliefs where others are understood as punishing, and self as unworthy, and thus impact on attachment working models and subsequent attachment relationships and behaviour. In a robust prospectively designed general population

study Waters *et al*., (2000) showed an association between traumatic events and insecure attachment style which could go some way to support the theory of traumatic events affecting attachment style in this way.

At the same time according to the concept of IWMs if the understanding of early trauma or later adversity leads people to develop beliefs about themselves as vulnerable (negative) and others as a source of threat (negative) development and maintenance of psychotic symptoms is more likely (Penn *et al*., 1997). This would be considered a fearful style of attachment and also most likely within the anxious attachment dimension. This is in line with findings from Tait *et al*. (2004) who found links between reported parental abuse and poor perceived parental care and insecure current attachment for people with psychosis.

2.2.6.4 Reflective functioning (RF)

RF refers specifically to the capacity of an individual to reflect on mental states of self and others in the context of early attachment relationships (Fonagy *et al*., 1998; Fonagy & Target, 1997). I.e. by having the capacity to attribute mental states to others ('mentalising') and reflect on these an individual can understand behaviour of others as meaningful and predictable. In turn this leads to development of a capacity for emotional regulation. RF capacity has implications for emotional regulation and thus psychopathology in adulthood (Fonagy & Target, 1997) in that one would expect lower levels of reflective functioning to be implicated in higher levels of emotional distress in response to difficult life events. Therefore one could predict traumatic events in early development (indicating others' behaviour was not meaningful or predictable) would confer to low RF which would then in turn result in higher levels of distress in adulthood.

To the authors knowledge only one published study has investigated RF capacity in relation to psychosis (MacBeth *et al*., 2011). This study found no relartionship between RF and psychotic symptoms, but the RF impacted on social functioning. Thus within the current study it would seem relevant to investigate the role of RF in mediating links between trauma and emotional distress for people with psychosis.

In summary, most studies to date have focused on psychotic symptoms in relation to trauma and attachment as opposed to emotional distress. Interestingly research has

indicated that symptom level is not necessarily indicative of distress in psychosis and other factors such as self-esteem, (Vracotas *et al*., 2007), appraisal (Garety *et al*., 2001; Kuipers *et al*., 2006) and believability (Gaudinio & Herbert, 2006) are more relevant, in line with models of psychosis.

Further understanding of the relationship between trauma, attachment and RF for people with psychosis seems key in delivering appropriate therapeutic approaches to this client group who are invariably within services due to difficulties in relationships, affect and general functioning and often viewed as "treatment resistant" (Meltzer, 1997). This is aligned with the assertion by Gumley and Schwannauer (2006) that disorders of the psychoses are fundamentally characterised by emotional dysregulation which sits within an attachment theory framework (Read & Gumley, 2010) and if valid, points towards the use of attachment based therapeutic approaches (Brisch, 2002) for people with psychosis.

2.3 Conclusions

This chapter has drawn on the literature regarding the impact of trauma and how this is relevant to both models of attachment and psychosis. The quality of the attachment relationship influences the way a person regulates emotion and experience of trauma influences the likelihood of someone experiencing psychosis. However, the understanding of links between trauma, psychosis, attachment and distress are still in the early stages. Based on the evidence pertaining to insecure attachment, childhood and adult trauma over-representation in psychosis samples this thesis aims to explore what the relationships are between these factors within this population looking further than symptoms of psychosis and focusing on emotional distress as an outcome due to the relevance of this on functioning. To the author's knowledge no study to date has specifically looked at the relationship between trauma, attachment and RF and distress for people with psychosis.

2.4 Thesis Aims and Hypotheses

This study seeks to further the literature by investigating the relationships between trauma, attachment, RF and emotional distress for people with psychosis to better understand how these factors interact to influence clinical outcomes for individuals.

2.4.1 Primary research questions

1. What is the relationship between trauma, attachment, RF and distress in psychosis?

2. Do attachment and RF mediate the effect of trauma on emotional distress for people with psychosis?

2.4.2 Specific hypotheses

Hypothesis one - Higher levels of trauma will correlate[9] with higher emotional distress

Hypothesis two - Individuals with psychosis who report early trauma will show increased levels of insecure attachment compared to those who have not reported developmental trauma

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[9] All correlations are Pearson's correlations

Chapter 3. Methodology

3.1 Design

The current study employed a cross-sectional quantitative design in order to address the research questions outlined.

3.2 Participants

3.2.1 Population justification

The current study was interested in links between attachment and trauma for people with experience of psychosis. The validity and reliability of current diagnostic systems based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; 1994) or the International Classification of Diseases (ICD-10; 1992) is questionable due to changing criteria and lack of specific aetiology and predictive validity of specific diagnoses (Bentall *et al*., 1988; Pilgrim, 2000; Read, 2004).

Studies have indicated that psychotic phenomena lie on a continuum with so called 'normality' (Bentall *et al*, 1989; Dignam *et al*., 2010; Freeman *et al*., 2005; Janssen *et al.*, 2006) and it is the distress associated with symptoms as opposed to the symptoms themselves that differentiate clinical and non-clinical groups (Kuipers *et al*., 2006). As such, differentiation between diagnoses seems to be a false dichotomy. Therefore this study was not interested in recruiting from a particular diagnostic group, but instead recruiting people with experience of psychotic phenomena. Inclusion criteria included diagnoses as recruitment was mainly from medical professionals but the criteria were broad to capture psychosis as opposed to specific psychiatric classifications.

3.2.2 Inclusion and exclusion criteria

All participants in the current study were individuals who had experience of psychotic symptoms (paranoia, severe thought disturbance, delusions or hallucinations). The

participants were required to have a diagnosis defined by categories of DSM-IV 295 and 297 within schizophrenia and other psychotic disorders or a diagnosis from the ICD-10 within categories F20 – F29, F38. Potential participants were identified by their keyworker or psychiatrist based on broad inclusion and exclusion criteria in table 3.1.

Participants were recruited from the NHS psychological and psychiatric outpatient caseloads, psychiatric inpatient services (acute and rehabilitation), Locality Mental Health Teams (LMHTs), outreach teams and one voluntary agency within the geographical areas of Fife and Tayside in Scotland.

Table 3.1. Inclusion and exclusion criteria

Inclusion criteria	The participant has a diagnosis incorporating psychosis that is defined by categories of DSM-IV 295 and 297 within schizophrenia and other psychotic disorders or a diagnosis from the ICD-10 within categories F20 – F29, F38.	Ability to speak and understand the English language.	Age 18 or above
Exclusion criteria	Lack of capacity to consent due to illness or disability as determined by lead medical professional for the individual (usually their psychiatrist).		

3.3 Measures

This study implemented a self-report questionnaire and semi-structured interview methodology. Five measures were administered and the Reflective Functioning questions of the Adult Attachment Interview (George *et al*., 1985) were carried out with all participants. All of these measures were analysed in the current study.

A self-report methodology was deemed appropriate as the aim of this research was to gain a better understanding of attachment and trauma for people with psychosis through exploring their personal experiences.

3.3.1 Reliability of using self-report measures

Within the literature it is argued by some that people with a diagnosis of psychosis may be unable to provide reliable and valid self-report data pertaining to psychological experiences (Cramer *et al*., 2000) and abuse history (Read *et al*., 2005) due to lack of insight, interference of psychotic symptoms, cognitive impairments, mental instability and difficulties of reality testing (Lysaker *et al*., 2005). However these assumptions have been countered by research specifically indicating accounts of trauma by psychotic populations are as accurate as the general population (Darves-Bornoz *et al*., 1995) and are valid and reliable (Goodman *et al*., 1999; Meyer *et al*., 1996, Read *et al*., 2005). Furthermore studies have indicated valid and reliable reports of distress and symptoms by people with psychosis (Huppert *et al*., 2002; Voruganti *et al*., 1998). Therefore the current study takes the view that this is a valid methodology to employ.

3.3.2 Beck Anxiety Inventory (BAI; Beck & Steer, 1993)

The BAI is a 21 item self-report scale measuring common symptoms of anxiety. 21 symptoms are listed such as; "sweating not due to heat", "tingling or numbness" and individuals are asked to rate their experienced severity of each symptom within the last week on a four point Likert scale ranging from zero "not at all" to three "severely – I could barely stand it". The BAI is scored by summing all the ratings for each symptom. Total scores can range from zero to 63. The cut off for a clinical level of anxiety is 8 with a score of 8 – 15 indicating mild anxiety, 16 – 25 moderate anxiety and 26+ indicating severe anxiety (Beck & Steer, 1990).

The BAI has shown excellent internal consistency (alpha = .92) in studies with psychiatric outpatients (Beck *et al*., 1988; Steer *et al*., 1993) and test–retest reliability over 1 week, r = .75 (Beck *et al*., 1988).

The BAI is commonly used within psychiatric populations (Steer *et al*., 1993) and specifically psychosis populations clinically and within research (e.g. Chen *et al*., 2009; Norman *et al*., 1998; Waters *et al*., 2006) and has evidenced validity and reliability in populations with high levels of thought disorder (Lekke *et al*., 2008).

3.3.3 Calgary Depression Scale for Schizophrenia (CDSS; Addington *et al*., 1990)

This CDSS (see appendix 3.1) was specifically developed to assess depression in relation to psychosis and schizophrenia. It is a more accurate measure to use than a generic depression measure as it takes into account the negative symptoms present in schizophrenia and psychosis so these do not confound the results as they might with a generic depression measure. The CDSS has been shown to most accurately differentiate between negative symptoms of schizophrenia and depression when compared to five other depression instruments (Lako *et al*., 2012) indicating high divergent validity.

It is a nine item semi-structured interview based measure with questions regarding depression such as " How would you describe your mood over the last two weeks? Do you keep reasonably cheerful or have you been very depressed or low spirited recently? In the last two weeks how often have you (own words) every day? All day?". Answers are then rated as zero "absent" to three "severe" based on the response for each question. The final question is based on the interviewer's observations of the individual throughout the interview. Probes can be used when appropriate. Scores can range between zero and 27. Scores of three and above are considered to indicate clinically significant depression and greater than seven indicating severe depression (Addington *et al*., 1993).

The CDSS is widely used with inpatients and outpatients (Addington *et al*., 1992; 1994; Jackson *et al*., 2009) has evidenced good internal consistency (Chronbach's alpha = .79), high test retest reliability (intra class correlation alpha = .9), high test-retest reliability (intraclass correlation = .09; Addington *et al*., 1993) and good internal reliability (alpha = .84; Addington, 1994) and good inter-rater reliability (Addington 1992) and is thus seen as the most valid and reliable tool in identifying depression in a

psychosis sample. In addition it is 'parsimonious' (Addington, 1992) and thus has low burden for the participant.

The use of the BAI and CDSS within the study were to give a measure of general emotional distress. The totals for each scale were combined to give a "total distress" score which was used as the outcome (dependent variable) within the analysis.

3.3.4 Impact of Events- Revised (IES-R; Weiss & Marmar, 1997)

The IES-R (see appendix 3.2) provided a measure of current trauma related distress. It is a 22 item scale that incorporates three symptom clusters of PTSD (avoidance, hyper-arousal and intrusions) however there is debate about these factors as some research has failed to replicate them (e.g. Creamer *et al*., 2003).

To complete the IES-R, participants identify an event in their life which they consider has been traumatic. They then rate 22 items such as "any reminders brought back feelings about it" to the extent to which they have been affected in the past week on a 5 point Likert scale from zero "not at all" to 4 "extremely".

A total score of 88 is possible. A score of 12 or above is deemed as clinically significant in presenting with symptoms of current trauma with scores above 33 indicating PTSD with increasing scores indicating increased severity (Creamer *et al*., 2003).

Creamer *et al*. (2003) evidenced good psychometric properties of the IES-R with high internal consistency (alpha = .96) and high concurrent validity when used in samples of treatment seeking trauma victims and a community sample compared to another measure of trauma (PTSD Checklist [PCL]; Blanchard *et al*., 1996; Weathers *et al*.1993, cited in Creamer *et al* 2003). The IES-R has been used reliably to assess trauma symptoms with people with psychosis (e.g. Meyer *et al*., 1999; White & Gumley, 2009)

The total score of this measure for each participant was used to assess whether current trauma symptoms were mediated by attachment in relation to general psychological distress as well as past trauma as measured by the trauma history questionnaire (THQ; Green 1996).

3.3.5 Trauma History Questionnaire (THQ; Green 1996)

The THQ (appendix 3.3) was developed on order to gather self-report information from clinical and non-clinical populations about lifetime exposure to traumatic events. It assesses the occurrence of different types of trauma a person may have experienced throughout their life-span such as interpersonal physical and sexual assault and abuse, crime, threat, war and disaster. For each of the 23 potentially traumatic events the individual indicates whether they have experienced it, and if they did what age it occurred. The final item (24) allows for the participant to add any event they considered to be traumatic that was not covered by the previous items.

There is no standard scoring method for the THQ but the most common way of scoring is to sum the number of events an individual has rated as traumatic (Green, 1996). Green *et al*. (2000) demonstrated good test-retest reliability of the THQ over a several week period (*r* 5 .60 to 1.00) for a non-psychiatric sample and Mueser *et al*. (2001) indicated moderate to high test-retest reliability of the scale with 79% to 100% agreement in a sample of people with severe mental illness.

There are different clinically relevant ways in which the THQ has be utilised in research such as breaking events into trauma type (Kilcommons & Morrison, 2005; Hardy *et al.*, 2005) and investigating high and low trauma groups by dichotomising scores into two groups (Spertus *et al*., 1999)[10] .

The THQ has been used in multiple studies to assess for traumatic events in people with psychosis related to PTSD (Mueser *et al*., 1998; Mueser *et al*., 2001) and psychotic experience (Hammersley *et al*., 2003; Hardy *et al*, 2005) by assessing overall and different types of trauma. Therefore the THQ was deemed appropriate for gathering information about trauma history within the current sample.

3.3.5.1 Early verses adult trauma

The current study was interested in investigating specific effects of early trauma. As such early trauma was defined as occurring at age 16 or below in line with other

[10] See Hoper et al. (2011) for an extensive summery of uses of the THQ in clinical research

research investigating early trauma in psychosis (e.g. Houston *et al*., 2011; Kilcommons & Morrison, 2005; Janssen *et al*., 2004; Meuser *et al*., 1998). For conceptualising early and adult trauma all items were split into early and adult and scored a one if the item was endorsed at that stage or zero if it was not. An overall score of one or zero was also allocated based on whether that event had occurred at any point for the participant. This meant that each item had an overall endorsement made more specific by age categories; early trauma and adult trauma. As such each participant could score between zero and 24 for total early trauma, total adult trauma or total lifetime trauma.

3.3.5.2 Interpersonal trauma

In order to address the specific effect of early interpersonal trauma the three sexual assault/abuse items (18-20) and three physical assault/abuse items (21-23) were investigated independently from other types of trauma. The same age relevant cut offs were used as above. As such a cumulative total of six was possible for early interpersonal trauma, adult interpersonal trauma or lifetime interpersonal trauma. This is a similar way of categorising early sexual abuse as Houston *et al*., (2011) and early interpersonal trauma as Green *et al*. (2000) using the THQ.

3.3.6. Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991)

The RQ (appendix 3.4) is based on Hazan and Shaver's (1987) Adult Attachment Questionnaire (AAQ). It yields categorical and dimensional scores on four categories of attachment; secure, dismissing, preoccupied and fearful.

Participants choose which of the four prototypes of attachment expressed by way of vignettes describes them the most accurately. They then separately rate how similar they think are to each prototype on a Likert scale of 1-7 with 1 indicating "Not at all like me", 4 indicating "Somewhat like me", and 7 indicating "Very much like me". These four vignettes correspond to the categories secure, dismissing, preoccupied and fearful attachment and do not require the participant to have experience of a romantic relationship or close relationships so it taps into a general attachment style.

In the current study the RQ was used to allocate a self-reported attachment style to each participant. In addition it was used to indicate the dimensions of anxious attachment and

avoidant attachment which brings together attachment style and Bowlby's internal working models paradigm (Bartholomew & Horowitz, 1991; Griffin & Bartholomew,1994; Stein *et al*., 2002). Within this model the two underlying dimensions of attachment anxiety and attachment avoidance are calculated. Attachment anxiety is calculated as the fearful plus preoccupied scores (high attachment anxiety) less the sum of secure and dismissing scores (low attachment anxiety). Attachment avoidance is calculated as the fearful plus dismissing scores (high attachment avoidance) less the sum of the secure and preoccupied scores (low attachment avoidance) (see figure 2.1). This is how Bartholomew and Horowitz (1991) suggest operationalizing attachment dimensions from the measure. Griffin and Bartholomew (1994) evidence good convergent validity for this approach and show that attachment anxiety and attachment avoidance are latent constructs when compared with other measurements of attachment.

Use of the dimensional approach is in line with several previous studies investigating attachment in psychosis using this measure (Meins *et al*., 2008; Pickering *et al*., 2008) and other measures (Blackburn *et al*.., 2010; Picken *et al*., 2010) so results of the current study can be compared.

Limitations of this measure are acknowledged but it is quick to administer and therefore low burden to participants which was an important consideration with the specific population under study. Therefore with adequate psychometric properties it was considered appropriate.

3.3.7 Demand questions indicating Reflective Functioning (RF) from the Adult Attachment Interview (AAI; George *et al*. 1985)

To put RF measurement in context it is important to first outline the AAI. The AAI is a semi-structured interview of 18 questions designed to elicit unconscious patterns of narrative that provide clues to the representation of internal working models and states of mind with regards to attachment. The underlying theory here is that there is a distinction between attachment experiences and how these are then represented (De Haas, 1994; van Ijzendoorn, 1995). As such the two aspects to coding the AAI centre on the content of what is said by the responder, but also the reflection and coherence

within the narrative (De Hass *et al*., 1994) to determine attachment style. Verbatim transcripts of the AAI can be used to classify attachment styles (Main *et al*., 2002) and reflective functioning (Fonagy *et al*., 1998). The AAI is widely used clinically and for research purposes with clinical and non-clinical populations of adults and adolescents. It has been consistently evidenced as able to provide a highly reliable and valid measure of attachment states of mind (van Ijendoorn, 1995)

There are several questions within the AAI that specifically target RF and thus are appropriate for rating this (appendix 3.5). Individual answers to questions are assessed for level of reflective function (see table 3.2)

Table 3.2 Indicators of different levels of reflective function (Fonagy *et al*., 1998)

Indicators of moderate to high reflective function	1. An awareness of the nature of mental states. 2. Indication of the effort involved in teasing out mental states from underlying behaviour. 3. Recognition of the developmental aspects of mental states. 4. Understanding of mental states in relation to the interviewer.
Indicators of absent or low reflective function	1. Rejection of reflection function 2. Unintegrated, bizarre or inappropriate RF 3. Reputation of RF 4. Distorting or self-serving reflective functioning 5. Naïve or simplistic RF 6. Over analytical/ hyperactive RF

Individual question scores are combined into an overall score for reflective functioning which goes from minus one to nine as indicated in table 3.3 The RF scale has been validated in several studies discussed by Fonagy *et al*. (1998) evidencing good inter-rater reliability (r=.89). Specific RF questions from the AAI have recently been used in isolation to detect RF without administering the whole AAI (Scherer-Dickson, 2010). This was considered appropriate for the current study give that administering the whole AAI would be lengthy and the demand questions can provide a level of RF that can be used in the current research.

Table 3.3 scores of RF (Fonagy *et al*., 1998)

Score	meaning
-1	Negative/ absent in reflective functioning
1	Lacking in reflective functioning
3	Questionable of low reflective functioning
5	Ordinary reflective functioning
7	Marked reflective functioning
9	Exceptional reflective functioning

The RF answers were transcribed by the principle researcher and subsequently coded by the academic supervisor of this research who has undergone training in reflective functioning coding.

3.3.8 Demographics

Information was gathered on age, gender and diagnosis of participants from refers and if not detailed in the referral form, from participants.

3.4 Procedure

3.4.1 Recruitment

Recruitment took place across six community mental health teams, three psychiatric rehabilitation wards, one acute psychiatric admissions ward and one day hospital within three Scottish health boards (participants were only referred from two of these health boards). Recruitment also took place at a hearing voices network within one of the health boards. Presentations of the study were given to each of the above groups and a professionals' information form outlining the study was made available to potential referrers (appendix 3.6).

After presentation of the research key workers were asked to identify and approach eligible participants, provide and discuss the participant information sheet (appendix

3.7) and ask if they would be interested in taking part. It was decided that key workers would do this as these were the people who were familiar to the potential participant and as such the individual would perhaps be less likely to feel pressurised than if approached by the principle researcher. This did mean that keyworkers had an additional task which understandably was not a priority in comparison to their routine clinical work and the principle researcher was dependent on them approaching their patients. If the individual agreed the keyworker referred them into the study via a referral form (appendix 3.8) which included a section for any additional information the potential participant or referrer wished to impart to the principle investigator.

To maximise recruitment two psychiatrists agreed to send letters of invitation along with a participant information sheets to patients they deemed to be eligible (appendix 3.9) using an opt-in procedure.

If the key worker who identified a potential participant was not a psychiatrist the consultant psychiatrist was contacted to approve the referral with regards to the inclusion and exclusion criteria (as per ethical panel guidelines).

When the principle investigator had a referral form they contacted the potential participant by telephone if consent had been given for this, or by letter if preferred, to offer an appointment. This was always at least 48 hours after the participant had been given study details in order for them to consider the information fully. It was stressed to participants that taking part was entirely voluntary and they were free to withdraw at any time without their healthcare being compromised.

At the arranged appointment the principle researcher completed the informed consent process and then the self-report measures and semi-structured interview questions were undertaken with the participant. This was done at a clinic/health service location convenient for the potential participant.

3.4.2 Assessment process

A standard procedure was followed in every meeting between participant and principle investigator. On initial meeting participants were asked if they had had time to consider

the participant information and if they wanted to go through it again. Informed consent was sought and measures were then administered.

3.4.2.1 Informed consent

Informed consent was sought directly from the participant through a participant consent form (appendix 3.10). The principle investigator went through each statement with the participant. Participants were made aware that they could pull out of the research at any time. Participants were told that if the principle investigator gained information during the meeting which led them to believe they or anyone else was at current risk of harm, the principle investigator would discuss this with them and decide on an appropriate course of action depending on the severity, which may have involved disclosure of information to other professionals. The participant was asked to read and sign three copies of the consent form, one of which they kept. It was explained the one of the others were copied and sent to their lead clinician for the participant's medical file, their GP and the third original was filed with the principle investigator.

3.4.2.2 Administration of measures

Measures were administered in a standard order each time; BAI, CDSS, IES-R, THQ, RQ, RF. To prevent any difficulties or discrimination regarding literacy, the principal investigator read aloud questions and wrote answers for all participants for all measures. Participants were informed that one of the questionnaires had sensitive questions regarding sexual and physical trauma (THQ) and should they wish to fill it in themselves they could. Only one participant took up this offer. All measures were identified by participant number only.

The interviewer openly explained that the interview of one of the measures (RF) would be audio recorded to enable accurate transcription, and that the material would be confidential and securely stored. The recorder was openly switched on when this measure was reached.

3.5 Participant confidentiality and data storage

Each participant was informed that all information would be kept strictly confidential and anonymised in accordance with the informed consent process. Each participant was assigned an identification number which was written on their consent form and stored electronically to ensure no identifiers were associated with any responses.

The electronic version of the participant number coding list was stored on the secure network drive within NHS Fife in a password protected file.

The measures data spread sheet was password protected and stored in the on the network drive with no personally identifiable information.

Measure scoring and data entry was performed by the principal investigator onto a spread sheet as soon as possible after collection, and originals were filed in a secure filing cabinet accessible by the principal investigator. The principle investigator also downloaded the audio recorded interview to the secure drive at the earliest opportunity and transcribed the recordings. For accuracy and to prevent future resource load, this was be done as soon as possible after the interview. Interviews were then coded by the academic supervisor as previously described.

3.6 Ethical considerations

An ethical issue that was anticipated to be relevant to this investigation was that the investigator was interviewing and asking potentially vulnerable adults with a history of psychosis to participate in the study. This was managed in several ways; by the first approach to participants being through keyworkers and using informed consent making it very clear that people were able to disengage from the study at any time. In addition the study only involved people with capacity to consent to involvement as determined by their psychiatrist. Most people who took part in the study had involvement with at least one mental health professional and so had access to support if this was needed.

The statutory responsibilities with regard to risk management and the associated limits to study confidentiality were made clear during the process of obtaining consent. As is standard, information was only shared where there was concern for the participant's safety, or the safety of another person or with prior agreement from the participant

where it may be beneficial to their care if other information is shared with their care team. This occurred once where a participant asked the investigator to share a disclosure with their key worker.

Protocol was that if an individual became distressed during participation in the study the appropriate pathway for support was to be sought through the services the individual was already accessing, generally through a key worker. For example, if someone was to disclose suicidal intent or there was concern about their or someone else's safety the primary investigator was to highlight this with them and ask them if it was OK to address this with their key worker. If the situation was acute then this was be done at that time, if it was less of a severe concern the participant was asked if they thought it might be helpful for them to discuss the issue with their key worker. In practice, this situation did not arise during the study.

If a participant was deemed by their psychiatrist or mental health care team to lose capacity between agreeing to take part and consent being sought the psychiatrist or keyworker was to inform the primary investigator and the potential participant would not be asked to consent and therefore not take part.

Issue of burden to participants was born in mind and as such measures were chosen for simplicity and where possible for brevity and read by the researcher for the participant. Also participants were told that measures could be administered in up to three sessions depending on the tolerance of the participant.

The questionnaires used in the study addressed potentially sensitive topics regarding trauma and distress levels. This was managed by using informed consent and making it clear that people did not have to answer any question they felt uncomfortable with and were able to disengage from the study at any time. In addition the study only involved people with capacity to consent as previously mentioned.

Traumatisation through participation in the study was a concern of some of the medical professionals who were approached regarding the study initially. The principle investigator could not find evidence to suggest that because an individual had experienced a trauma asking a yes/no question as to whether that type of trauma had occurred would traumatise them. On the contrary there is evidence to suggest that these kind of beliefs overemphasise a trauma survivor's vulnerability and reinforce societal

avoidance of abuse/trauma discounting the benefits that may occur when someone is asked directly about trauma experience (Becker-Blease & Freyd, 2006). Asking about abuse is also in line with current mental health policy regarding routine enquiry about abuse by mental health workers (Department of Health, 2008; Scottish Government, 2008). Within this study one of the participants benefitted by being able to disclose an incident that they had not known how to broach with their keyworker previously. They reported finding this helpful and subsequently were able to go on to address this experience in psychological therapy.

3.6.1 NHS ethics and Research and Development office approval

NHS ethical approval was granted by the relevant Research Ethics Committee which approved the research to be carried out within NHS Fife, NHS Tayside and NHS Forth Valley Health (appendix 3.11).

Research and Development office approval was established for each NHS health board (appendix 3.12).

In addition contact details of the principle investigator were given on the participant information sheet should participants have any further questions.

3.7 Statistical analyses

3.7.1 Power analysis

Within the current study it was important to determine a clinically relevant effect size. The results of this study needed to be clinically meaningful and significant within the population being studied and for the purposes of the research; to identify the relationship between trauma, attachment and distress in psychosis. Aiming to detect a small effect size may not be clinically meaningful, even if it may be statistically significant. No previous study reporting effect size had carried out a similar analysis using the same variables and as such the effect size was based on studies which examined correlations between these or similar variables. For example MacBeth *et al*.

(2011) investigated relationships between attachment and quality of life for people with psychosis and found correlation effect sizes of between 0.4 and 0.47. For the purposes of identifying the effect that attachment adds to the other predictors of distress in psychosis an effect size of 0.3 (considered medium within multiple regression analysis; Cohen, 1992) was chosen to remain conservative and reduce the likelihood of a type two error, but remain clinically significant.

Taking the above factors into consideration sample size for three predictors (trauma reflective functioning and attachment status) with a medium effect size using a multivariate regression analysis was calculated with an alpha level of 0.05 as suggested for this type of analysis by Cohen, (1992) and Green (1991) and recommended statistical power of 0.8 (Cohen, 1992; Tabachnick & Fidell, 2001).

There is no clear cut method for determining number of participants required in multiple regression analysis. An online calculator (Soper, 2012) using the parameters above resulted in a minimum of 41 people needed to achieve power. Other methods include those in table 3.4:

Table 3.4 Calculation of sample size examples

Reference	Formula	Number required
Harris (1985)	$N \geq 50 + m$ where m = no. of predictor variables	53
Cohen (1992)	76 participants required for a multiple regression analysis with three individual predictors	76
Green (1991)	$N \geq 50+m$ for testing overall fit of a regression model and $N \geq 104+m$ for testing individual predictor variables within a regression model.	74 for overall model, 107 for individual predictor variables

Based on the calculations above a sample of 76 would be optimal within the current study in order to test the overall fit of the model.

3.7.2 Analysis methods

Data were entered into a statistical package called Statistical Package for the Social Sciences (SPSS) version 19.0 for Windows.

3.7.2.1 Preliminary analyses and hypotheses

Preliminary exploration of the data was carried out using descriptive statistics, Pearson's correlations and independent sample t-tests. Parametric assumptions, covariance of demographic variables and covariance were addressed and are detailed in the results section.

3.7.2.2 Analysis regarding mediation

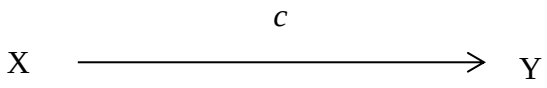
Simple mediation analyses were carried out using the procedure recommended by Preacher & Hayes (2004, 2008), which allows simple nonparametric mediation analysis with smaller numbers of participants. Due to the fact independent predictor variables, dependent outcome variables and the mediator variables have been established on theoretical and procedural grounds this was appropriate approach (Preacher & Hayes, 2008).

Theory and use of mediation analyses

Mediation analysis is used to test the effect of a potential mediator (M) variable between an independent variable (IV) and dependent variable (DV). Figure 3.1 illustrates this.

a. Direct effect from X to Y where:

c is the total effect of X on Y



b. Mediation design where X effects Y through M where:

a is the effect of X on the proposed mediator

b is the effect of the proposed mediator on Y controlling for *a*

ab is the product of *a* and *b* – the specific indirect effect of A on Y through the mediator

c' is the direct effect of X on Y controlling for the indirect effects of the *ab* routes (*c'* = *c* - *ab*)

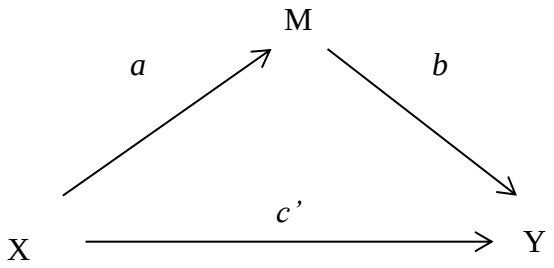


Figure 3.1 Illustration of mediation design (adapted from Preacher and Hayes, 2008)

The dominant approach of mediation analysis within the literature has been the *causal steps approach* of Baron and Kenny (1986) which has been criticised for low power, likelihood of Type 1 error, and not addressing the question of whether the mediation effect is significantly different from zero and in the expected direction (Hayes, 2009). The *Sobel test* (Sobel 1982) is a more rigorous test of mediation and addresses the significance of the indirect effect, but this approach relies on a normal sample distribution of the indirect effect which is often violated in small sample sizes, leading to a Type 2 error regarding detection of relationships among variables.

The approach used in the current study uses *bootstrapping* to test the statistical significance of the indirect effect which allows for nonparametric data and as such normality of total and specific effects is not assumed. This method involves repeatedly

randomly sampling the indirect effect with replacement from the data set (so the same case can be sampled more than once) and computing the statistic of interest in each 'bootstrap sample'. Over repeated bootstrap resamples (Hayes, 2009 recommends at least 5000) a distribution of the values can be generated and sorted from low to high which produces an approximation of the sampling distribution which can be used for hypothesis testing. A bias corrected (Efron, 1987) confidence interval (usually of 95%) is then applied and if the value of zero does not fall within the lower and upper bounds a significant indirect can be assumed with 95% confidence. This method is advantageous for smaller sample sizes as it does not assume normalilty and creates an approximation of the distribution of the indirect effect through resampling (Hayes, 2009).

Chapter 4: Journal article[11] [12] [13]

An exploration of the role of attachment in the relationship between trauma and distress in psychosis

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Word count excluding references: 6364

[11] Produced according to submission guidelines of *Attachment and Human Development* (see appendix 4.1 of thesis).

[12] Numbering of titles has been included in this review for continuity with the thesis but would not be included for submission. Additionally, tables are included within text as per instructions in the *University of Edinburgh/ NHS (Scotland) Clinical Psychology Training Programme 3 year Full Time and Specialist Training Handbook* but would be formatted for submission as per Attachment and Human Development journal guidelines.

[13] Extended results and discussion are included in chapters 5 and 6 respectively within the main thesis.

4.1 Abstract

Background: Links between psychosis and trauma have been established within the literature. Early evidence would suggest implication of mediators within this relationship. Attachment literature indicates attachment status and reflective functioning (RF) are related to trauma history, with associations between early trauma and insecure attachment in psychosis populations.

Aim: The aim of this study was to investigate the relationship between trauma, attachment, reflective functioning and distress for people with psychosis.

Method: Participants with a diagnosis of psychosis were recruited and measures were completed pertaining to trauma, attachment and distress in psychosis.

Results: The majority of the sample reported insecure attachment and low RF and there were high levels of general, and more specifically, interpersonal trauma within the sample. Results indicated that early interpersonal trauma was associated with higher levels of emotional distress. Exploratory mediation analyses implicated anxious attachment in mediating the relationship between interpersonal trauma and distress.

Discussion: The results indicate the need to consider early trauma histories and specifically interpersonal trauma and attachment in the context of emotional distress for people experiencing psychosis. Incorporating trauma and attachment based therapeutic approaches for people with psychosis is as relevant as it is for other trauma populations. Limitations of the methodological approach are considered along with suggestions for future research.

Keywords: trauma, attachment, psychosis, emotional distress

4.2 Introduction

There are high prevalence rates of early trauma in populations of people with psychosis (Bentall, Wickham, Shelvin & Varese, 2012). There are well established links between trauma and psychosis which signify exposure to childhood trauma should be considered as an important cause of psychotic disorder (Bentall et al., 2012; Varese et al., 2012). A recent meta-analysis of 41 studies investigated the relationship between early trauma and psychosis (Varese et al., 2012). The analysis included prospective cohort, large scale cross-sectional, and case-controlled designs and found trauma was significantly associated with an increased risk for psychosis with an odds ratio of 2.75 or above, regardless of study design. Furthermore this meta-analysis indicated that if the adversities examined as risk factors were removed from the population (assuming causality) there would be a 33% reduction in the number of people with psychosis. This recent meta-analysis lends robust support to the strong relationship indicated between trauma and psychosis.

The mechanisms through which trauma determines psychotic symptomology are not fully understood. However there are three hypothesised models implicated in linking trauma to psychosis. Firstly, that trauma just adds to a general vulnerability to psychotic experiences that an individual may hold, along with host of other vulnerabilities (Spauwan, Krabbendam, Lieb, Wittchen, van Os, 2006). Secondly, a psychological perspective postulates it is the specifics of interpersonal trauma that impact on beliefs about self and others within cognitive models of psychosis (Garety Kuipers, Fowler, Freeman. & Bebbington., 2001). An increase in negative beliefs about self and others along with external attribution increases the likelihood of paranoid interpretation of anomalous experience and interpersonal relating based on previous traumatic experiences (Platts, Tyson & Mason, 2002). Thirdly, models of emotional regulation implicate early trauma in increasing sensitivity to stress. This results in poor emotional regulatory strategies implicated in development of psychosis through abnormal neurological development. The traumagenic neurodevelopmental (TN) model (Read, Perry, Moskowitz, & Connolly, 2001) incorporates the neurodevelopmental framework to understand the impact of trauma in psychosis. This model takes into account and assimilates biological, social and psychological factors associated with psychosis. According to this model prevalence of early trauma will increase the likelihood of

psychosis. Systematic review of the evidence (Bendall Jackson., Hulbert. & McGorry, 2008) points to the need for further controlled, prospective studies to evidence causal links between trauma and psychosis and also investigate mediating factors that may impact on this relationship. One such potential mediator is attachment. The contribution that attachment theory can make to the understanding and treatment of psychosis has been a recent development within therapeutic approaches for individuals with a diagnosis (Gumley & Schwannauer, 2006). Difficulties in emotion regulation have been implicated in symptom formation and maintenance of psychotic symptoms (Westermann & Lincoln, 2010). Due to the fact that developing skill in emotional regulation is strongly associated with attachment (Mikulincer, Shaver & Pereg, 2002) this is further evidence that attachment theory has a significant role to play in understanding psychotic symptomology.

Internal working models (IWMs) of attachment overlap with the paradigm of self and others in cognitive models of psychosis (Garety et al., 2001) in that they both focus attention and influence expectations and interpretations of interpersonal relating based on previous experiences (Platts et al., 2002). However, IWMs go further than cognitive models by way of explanation in that they relate emotional states to interpersonal relationships and belief systems (Collins & Allard, 2004). Thus there is an emphasis within attachment IWMs of relationships guiding self-beliefs and beliefs of others which has implications for understanding models of psychosis within a social cognition context. If the experience of early trauma or later adversity leads people to develop beliefs about themselves as vulnerable (negative) and others as a source of threat (negative), then development and maintenance of psychotic symptoms is more likely (Penn, Corrigan, Bentall, Racenstein, & Newman 1997). This would be considered a fearful style of attachment and also most likely within the anxious attachment dimension (Bartholomew & Horowitz, 1991). This is in line with findings from Tait, Birchwood and Trower (2004) who found links between reported parental abuse, poor perceived parental care and insecure attachment for people with psychosis. This could go some way to support the theory of traumatic events affecting attachment style in this way.

Furthermore the concept of reflective functioning (RF) is linked to attachment organisation and refers specifically to the capacity of an individual to reflect on mental

states of self and others in the context of early attachment relationships (Fonagy & Target, 1997). I.e. by having the capacity to attribute mental states to others ('mentalising') and reflect on these an individual can understand behaviour of others as meaningful and predictable. In turn this leads to development of a capacity for emotional regulation. RF capacity has implications for emotional regulation and thus psychopathology in adulthood (Fonagy & Target, 1997) in that one would expect lower levels of reflective functioning to be implicated in higher levels of emotional distress in response to difficult life events. Therefore one could predict traumatic events in early development (indicating others' behaviour was not meaningful or predictable) would confer to low RF which would then in turn result in higher levels of distress in adulthood.

Most studies to date have focused on psychotic symptoms as outcome in relation to trauma and attachment, as opposed to emotional distress. This study took the view that the evidence indicates distress may be a more relevant outcome by which to assess functional impact of trauma rather than symptoms (Garety et al., 2001; Kuipers et al., 2006).

Further understanding of the relationship between trauma and attachment for people with psychosis seems key in delivering appropriate therapeutic approaches to this client group. They are invariably within services due to difficulties in relationships, affect and general functioning, and often viewed as "treatment resistant" (Meltzer, 1997). This is aligned with the assertion by Gumley and Schwannauer (2006) that disorders of the psychoses are fundamentally characterised by emotional dysregulation which sits within an attachment theory framework (Read & Gumley, 2010). If valid, this points towards the use of attachment based therapeutic approaches (Brisch, 2002) for people with psychosis. In summary, evidence suggests the quality of the attachment relationship influences the way a person regulates emotion whilst the experience of trauma influences the likelihood of someone experiencing psychosis. However, the understanding and empirical evidence of links between trauma, psychosis, attachment and distress is still at an early stage. Based on the evidence to date one could hypothesise that attachment may mediate the relationship between trauma and distress through developmental models as discussed. To the author's knowledge, no study to

date has specifically focused on the relationship between trauma, attachment and distress for people with psychosis.

4.3 Materials and methods

4.3.1 Participants and procedure

A total of 51 participants (age range 20 to 67 years, mean 43 years) took part in the current study from the areas of Fife and Tayside. Inclusion criteria were a diagnosis of psychosis as defined by categories Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; 1994) or the International Classification of Diseases (ICD-10; 1992), ability to speak and understand the English language and being aged 18 years or above. Exclusion was based on a lack of capacity to consent due to illness or disability.

4.3.2 Selection and recruitment

After presentation of the research to relevant health teams and voluntary agency, key workers were asked to identify and approach eligible participants, provide and discuss the participant information and ask if they would be interested in taking part. It was decided that key workers would do this as these were the people who were familiar to the potential participant. Therefore the individual would perhaps be less likely to feel pressurised than if approached by the principal researcher. If the individual agreed then the keyworker referred them into the study via a referral form. The principal investigator contacted the potential participant and a time for seeking informed consent and completing measures was arranged. It was stressed to participants that taking part was entirely voluntary and they were free to withdraw at any time without their healthcare being compromised. Measures were administered by the principal investigator.

4.3.3 Instruments

4.3.3.1 Beck Anxiety Inventory (BAI; Beck & Steer, 1993)

The well-validated 21 item BAI self-report scale was used to measure common symptoms of anxiety. Total scores can range from zero to 63. The cut-off for a clinical level of anxiety is 8 with a score of 26+ indicating severe anxiety (Beck & Steer, 1990). Internal reliability (Cronbach's alpha) for the scale in the current study was good (alpha = .90).

4.3.3.2 Calgary Depression Scale for Schizophrenia (CDSS; Addington, Addington & Schissel, 1990)

The nine item CDSS was used to measure depression with semi-structured interview questions regarding depression. Scores can range between zero and 27. Scores of three and above are considered to indicate clinically significant depression with greater than seven indicating severe depression. Internal reliability was high (alpha = .86).

The BAI and CDSS scores were combined to give a measure of a *general emotional distress* score which was used as the outcome (dependent variable) within the analysis. Internal consistency for this was high at alpha = .93.

4.3.3.3 Impact of Events- Revised (IES-R; Weiss & Marmar, 1997)

The 22 item IES-R provided a measure of current trauma symptoms. A total score of 88 is possible. A score of 12 or above is deemed as clinically significant in presenting with symptoms of current trauma. Scores above 33 indicate PTSD with increasing scores indicating increased severity (Creamer, Bell & Failla, 2003). The scale demonstrated high internal reliability within the current study (alpha = .91).

4.3.3.4 Trauma History Questionnaire (THQ; Green 1996)

The 24 item THQ was used to assess the occurrence of different types of trauma a person may have experienced throughout their life-span. For each item the individual

indicates whether they have experienced it, and if they did at what age it occurred. There is no standard scoring method. The current study was interested specifically in effects of interpersonal trauma and trauma at different life stages. As such, early trauma was defined as 16 or below in line with other research investigating early trauma in psychosis (Houston et al., 2011). In order to address the specific effect of early interpersonal trauma the six sexual and physical assault/abuse items (18-23) were investigated independently from other types of trauma (similar to Green et al., 2000). Mueser et al. (2001) indicated moderate to high test-retest reliability of the scale with 79% to 100% agreement in a sample of people with severe mental illness. The THQ has been used in multiple studies to assess for traumatic events in people with psychosis (e.g. Hardy et al, 2005).

4.3.3.5 Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991)

The RQ yields categorical scores on four categories of attachment: secure, dismissing, preoccupied and fearful, and also dimensional scores for avoidant and anxious attachment as suggested by Bartholomew and Horowitz (1991), consistent with previous studies investigating attachment in psychosis using this measure (Pickering, Simpson & Bental, 2008). Griffin and Bartholomew (1994) evidence good convergent validity for this approach. Review of the RQ by Ravitz et al. (2010) within several studies indicate good face and discriminant validity of this measure.

4.3.3.6 Demand questions indicating Reflective Functioning (RF) from the Adult Attachment Interview (AAI; George, Kaplan & Main, 1985)

There are several questions within the AAI that specifically target RF and thus are appropriate for rating this (Scherer-Dickson, 2010). Individual answers to questions are assessed for level of RF (Fonagy, Target, Steele & Steele., 1998)**.** Scores are combined into an overall score for RF which goes from minus one "negative/ absent in reflective functioning" to nine "exceptional reflective functioning". The RF scale has been validated in several studies discussed by Fonagy et al. (1998), evidencing good inter-rater reliability (r=.89). Specific RF questions from the AAI have recently been used in isolation to detect RF without administering the whole AAI (Scherer-Dickson, 2010).

4.3.4 Ethics

NHS ethical approval was granted by the relevant Research Ethics Committee which approved the research to be carried out within NHS Fife, NHS Tayside and NHS Forth Valley, although no participants were recruited from NHS Forth Valley. All participants received verbal and written information and gave informed consent.

4.3.5 Analysis methods

Pearson's correlations were performed in order to assess associations between variables of interest, and to establish relationships between the independent variable (IV)s and the dependent variable (DV). Following this, mediation analysis was carried out using SPSS syntax developed by Preacher and Hayes (2008) for IVs where there was a correlation with the DV. This approach provides mediation effects for variables of interest using both a normal theory approach and non-parametric bootstrapping to provide confidence intervals. This is advantageous for smaller sample sizes (Preacher and Hayes, 2008).

Mediation occurs when the effect of IV on the DV functions through a mediator (M). Within the present study current trauma, conceptualised as current symptoms, general and interpersonal trauma are all IVs. Emotional distress, conceptualised as depression and anxiety, is the DV. Attachment (anxiety, avoidance, security) and RF are all potential mediators.

4.4 Results

4.4.1 Sample characteristics[14]

Data were analysed using SPSS Version 19. Of the 51 participants, one participant had not filled in the IES-R so this participant was excluded from analysis involving the IES-R. Demographic characteristics are shown in table 4.1.

[14] See extended results section of thesis for further detail

Table 4.1. Demographic characteristics of the sample

Demographic	Percentage within sample
Gender	
Female	43.1%
Male	56.9%
Diagnosis	
Schizophrenia	58.8%
Schizoaffective disorder	9.8%
Bipolar disorder with psychotic symptoms	11.8%
Bipolar affective disorder with psychotic symptoms	9.8%
Depression with psychosis	3.9%
Psychosis NOS	5.9%
Setting	
NHS Community	70.6%
Voluntary community	5.9%
Inpatient acute	15.7%
Inpatient rehabilitation	7.8%
Region	
Fife	92.2%
Tayside	7.8%
Referred by	
Psychology	41.2%
Psychiatry	33.3%
Psychiatric nurse	19.6%
Voluntary agency	5.9%

Mean levels of emotional distress within the sample indicated clinical levels of moderate anxiety and severe depression (see Table 4.2). The mean levels of current trauma symptoms indicated threshold PTSD symptomatology. Attachment classifications derived from the first section of the RQ (see Table 4.3) indicated that fearful attachment was the most prevalent with preoccupied the least prevalent. There was a mean value indicating average low RF within the sample. with a skew towards low RF.

Table 4.2. Descriptive statistics for the measures

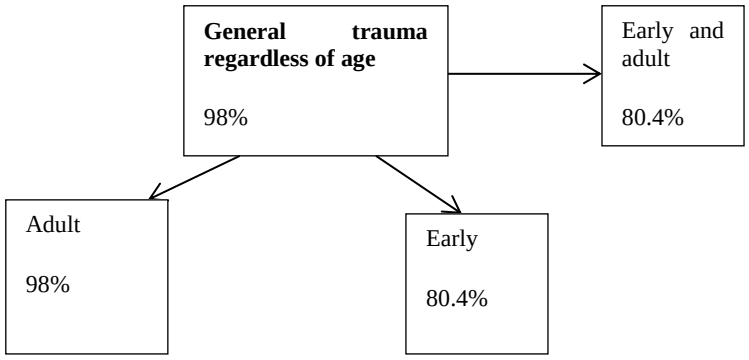
Measure	Mean	Standard Deviation	Range of scores obtained Minimum	Maximum
Total emotional distress (using refined CDSS6A)(n=51)	27.10	16.75	1	67.00
BAI (n=51)	18.18	12.15	0.00	46.00
CDSS6A (n=51)	8.92	6.09	1.00	22.00
IES-R (n=50)	32.54	18.69	0.00	79.00
RF (n=51)	2.49	2.25	-1.00	9.00
RQ (n= 51)				
RQ secure attachment (n=51)	3.51	1.88	1.00	7.00
Dimension: avoidant attachment (n= 51)	1.49	3.50	-6.00	9.00
Dimension: anxious attachment (n= 51)	1.01	4.83	-6.00	11.00
THQ (n= 51)				
Total trauma	8.06	3.85	0.00	16.00
Total early trauma	3.25	2.62	0.00	10.00
Total adult trauma	5.57	2.96	0.00	13.00
THQ early interpersonal trauma	1.55	1.33	0.00	5.00
THQ adult interpersonal trauma	1.08	1.16	0.00	5.00
THQ interpersonal trauma regardless of age	2.47	1.67	0.00	6.00

Table 4.3. Attachment classifications of the sample

Attachment style	Frequency (n)
Secure	23.5 %(12)
Fearful	49.0% (25)
Preoccupied	5.9 (3)
Dismissive	21.6 (11)

The level of trauma within the sample was high and the breakdown of general and interpersonal trauma by stage in life can be seen in figure 1.

a. General trauma



b. Interpersonal trauma

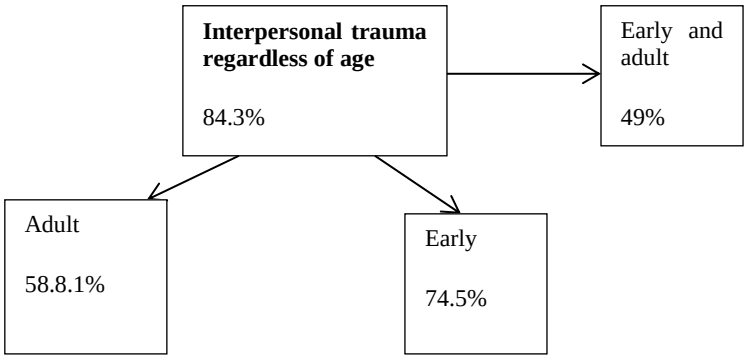


Figure 4.1. Frequencies of different types of trauma at different ages within the sample

Normality of data was calculated and where this was contraindicated transformations were carried out successfully[15]. Assumptions of regression analyses were assessed and all met bar linearity of the RF scale, so this scale could not be used in mediation analysis. Covariance was found between gender and distress with females indicating higher levels of distress, so this was added as a covariate in the mediation analyses. Age was not a found to be a covariate.

No colinearity was found between predictor variables (see table 4.4), other than between THQ variables which would be expected as they are different aspects of the same scale using overlapping items. Therefore they were not used within the same mediation analyses.

[15] See extended results section of thesis for further detail

Table 4.4. Colinearity of predictor variables (Pearson's correlations)

	Total IES-R	**Total Trauma**	Total early trauma	Total adult trauma	**Total interpersonal trauma**	Early interpersonal trauma	Adult interpersonal trauma	Secure attachment	Dimension : anxious attachment	Dimension: avoidant attachment	RF
Total IES-R	1.00	.208 .074	.172 .116	.139 .167	.202 .080	.276 .026*	-.027 .426	-.116 .210	.295 .019*	.027 .426	-.063 .332
Total trauma		1.00	.689 .000**	.806 .000**	.823 .000**	.652 .000**	.431 .001**	-.259 .035*	.188 .096	.180 .105	.195 .087
Total early trauma			1.00	.208 .074	.576 .000**	.743 .000**	.035 .404	-.193 .090	.064 .330	.225 .058	.252 .039*
Total adult trauma				1.00	.651 .000**	.303 .016*	.638 .000**	-.244 .044*	.262 .033*	.116 .211	.058 .344
Total interpersonal trauma					1.00	.820 .000**	.638 .000**	-.393 .002**	.365 .005**	.228 .055	.078 .296
Early interpersonal trauma						1.00	.187 .096	-.377 .003**	.273 .027*	.229 .054	.104 .236
Adult interpersonal trauma							1.00	-.274 .027*	.376 .004**	.193 .090	-.106 .231
Attachment											
Secure attachment								1.00	-.621 .000**	-.644 .000**	.066 .324
Dimension : anxious attachment									1.00	.125 .193	-.040 .392
Dimension: avoidant attachment										1.00	-.069 .317
RF											1.00

*significance at p<.05 level **significance at p<.01 level

Table 4.5. Correlations among potential predictor variables and DVs

Predictor variables	Dependent variable Emotional distress
Total IES-R	.547** .000
Total trauma	.182 .103
Total early trauma	.118 .128
Total adult trauma	.138 .169
Total interpersonal trauma	.237* .048
Early interpersonal trauma	.291* .020
Adult interpersonal trauma	.005 .486
Attachment	
Secure attachment	-.170 .119
Dimension – anxious attachment	.336** .008
Dimension – avoidant attachment	-.031 .415
RF	-.121 .201

*significance at p<.05 level **significance at p<.01 level

4.4.2 Correlation findings

Levels of trauma and emotional distress

Current trauma symptoms as assessed by the IES-R correlated strongly with current emotional distress (r = .547, p<.001). There was a non-significant correlation between emotional distress and general trauma regardless of age (r = .182, ns), number of early traumatic events reported (r = .118, ns) and number of traumatic events reported in adulthood (r= .138, ns). There was a moderate correlation between emotional distress and interpersonal trauma regardless of age (r= .237, p = .048) and early interpersonal trauma (r= .291, p =.020). Emotional distress and adult interpersonal trauma were not significantly correlated (r= .005, ns). In summary, direct correlations of trauma and

emotional distress were only significant between current trauma symptoms and interpersonal trauma regardless of age and early interpersonal trauma, with strongest correlations shown between current trauma and emotional distress compared with interpersonal trauma.

Early trauma and insecure attachment.

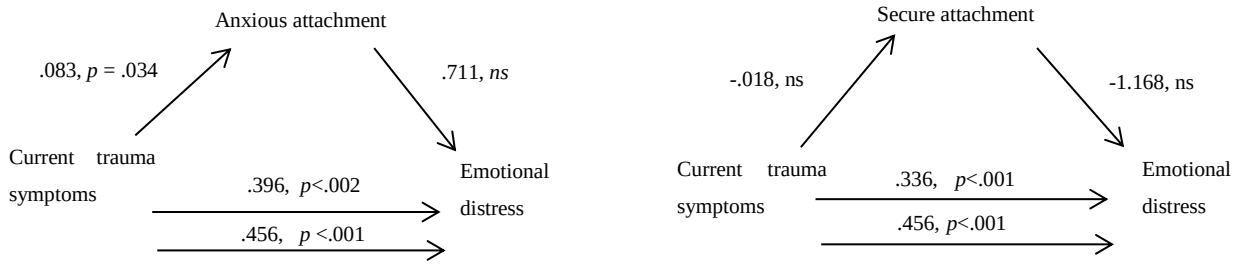
There was a non-significant relationship between early general trauma and secure attachment (r = -.193, ns), anxious attachment (r = .064, ns) and avoidant attachment (r = .225, ns) dimensions. Early interpersonal trauma significantly negatively correlated with secure attachment (r=-.377, p = .003), significantly positively with anxious attachment (r = .273, p = .027) and marginally missed correlating significantly positively with avoidant attachment (r = .229, p = .054). Thus, early interpersonal trauma did relate to attachment status in the predicted direction. Early interpersonal trauma rather than early general trauma was related significantly positively with insecure attachment status and significantly negatively with secure attachment. Even though the relationships between general trauma and attachment were insignificant, the relationships were in the predicted direction. Secure attachment was negatively correlated and both insecure attachment styles were positively related to early trauma.

4.4.3 Mediation findings[16]

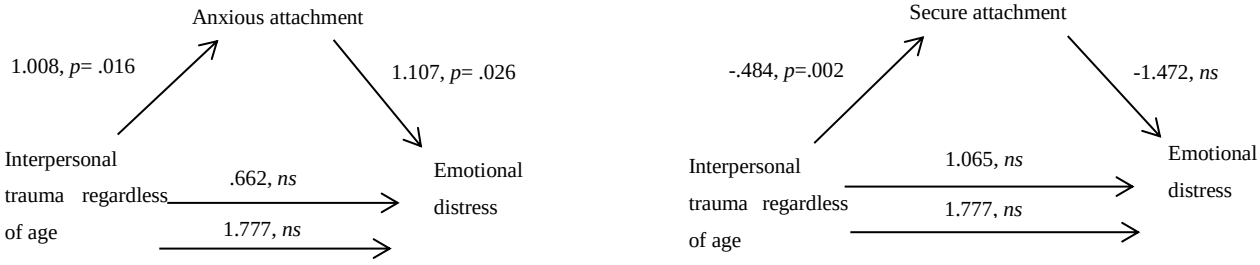
As a result of significant correlations between IVs and the DV, mediations were carried out using IVs of current trauma symptoms, total interpersonal trauma and early interpersonal childhood trauma. Secure attachment and anxious attachment were investigated as mediators in separate models (due to their overlapping constructs within the Bartholomew & Horrowitz, 1991 IWM paradigm). Avoidant attachment was not included in mediations due to a lack of relationship found with IVs and DV As previously noted, RF could not be included in mediation analyses due to lack of a linear relationship with emotional distress.

[16] See extended results section of thesis for further detail

a. Current trauma symptoms



b. Interpersonal trauma regardless of age



c. Early interpersonal trauma

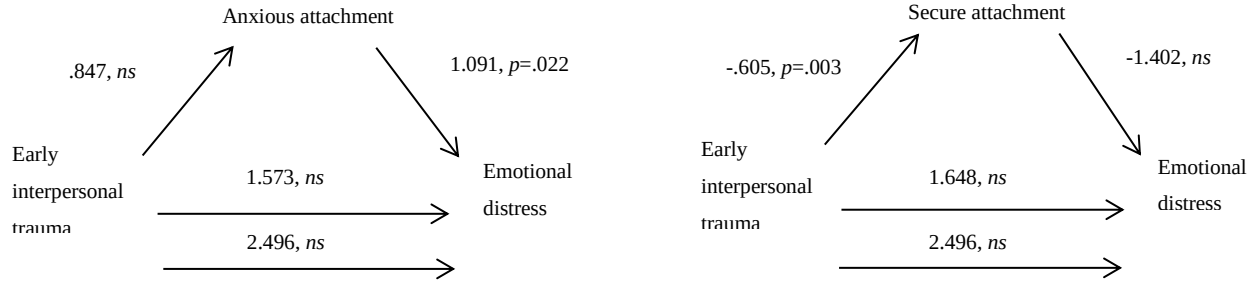


Figure 4.2 Models of mediation. Unstandardised regression coefficients are reported.

As seen in Figure 2, current trauma symptoms directly predicted the level of emotional distress c' = .3975 (t= 3.32, *p* <.002) and no mediation effects of attachment were found.

Interpersonal trauma (regardless of age) and early interpersonal trauma did not have direct effects on emotional distress. However anxious attachment mediated the relationship between interpersonal trauma (regardless of age) and emotional distress (a = .1.008 [t= 2.502, *p* = .016]) , b = .1.107 [t = 2.300, *p* =.026]) and with bootstrapping confidence interval testing this mediation effect was estimated to lie between .053 and 3.144 with 95% confidence and was thus significant. Partial effects were found between interpersonal trauma (regardless of age) and secure attachment a = -.4839 (t= -3.230, *p* = .002), with less overall interpersonal trauma indicating increased secure attachment but no overall mediation effects (lower BC CI = -.4305, upper BC CI =2.7340) were indicated.

There were partial effects of anxious attachment on emotional distress in the context of early interpersonal trauma b = 1.091 (t = 2.364, *p* = .022) but no overall mediator effect of anxious attachment (lower BC CI = -.2299, upper BC CI = 3.4590). Early interpersonal trauma effected secure attachment a = -.605 (t= -3.134, *p*<.003), with less interpersonal trauma indicating more secure attachment, with no overall mediator effect of secure attachment (lower BC CI = -.5238, upper BC CI = 3.2537).

4.5 Discussion

Levels of anxiety, depression and RF (see Table 4.2) were similar to other studies with psychosis samples (Lançon, Auquier, Reine, Bernard & Addington ,2001; Lekke, Hesse., Fitzgerald, Austin & Oestrich, 2008; Scherer-Dickson, 2010). Levels of current trauma symptoms were higher than in similar sampled studies (Meyer et al., 1999) and the mean was indicative of a diagnosis of PTSD. High levels of insecure attachment and trauma were apparent in the sample. Results will be discussed in more detail below.

4.5.1 Trauma

The prevalence of symptom severity sufficient to warrant a diagnosis of PTSD within the sample (according to the IES-R) was 52%. This is similar to the prevalence rates (38% – 66%) of PTSD in people with psychosis exposed to trauma in studies reviewed by Meuser, Rosenberg, Goodman and Trumbetta (2002). Consistent with previous research (Berry, Barrowclough & Wearden, 2009) there was a high level of trauma history in the sample with 98% of people experiencing at least one type of traumatic event and 84.3% of people experiencing interpersonal trauma. Berry et al., (2009) indicated 92.5% and 82.5% respectively for their sample which had similar demographic characteristics to the current study. Levels of early trauma were also high with 80% of the sample experiencing at least one type of early trauma and 74% experiencing some form of early interpersonal trauma. These figures are comparable to Holowka, King, Saheb, Pukal and Brunet (2003) who found 80% of their outpatient schizophrenia sample had experienced some form of childhood abuse or neglect.

4.5.1.1 Correlations of trauma and emotional distress

The correlation between current trauma symptoms and emotional distress was high. This indicates a strong relationship between trauma symptoms defined by the IES-R and emotional distress (anxiety and depression). Interestingly general trauma, regardless of age, early or in adulthood did not correlate with emotional distress, in line with Andrew, Gray and Snowden (2008), who found number of general trauma events was not a significant predictor of distress in psychosis.

In line with predictions, interpersonal trauma (regardless of age) and early interpersonal trauma correlated positively with emotional distress. There is evidence that early interpersonal trauma predicts depression in non-psychosis populations (Alexander, 1993). However there is a lack of empirical evidence in the literature regarding psychosis populations because, as previously noted, the main focus within clinical studies to date has been on psychotic symptomology (Bendall et al., 2008). Curiously, adult interpersonal trauma did not have a relationship with emotional distress. This finding could be due to the impact which interpersonal trauma has on development of emotional regulatory strategies within childhood which are largely learnt by adulthood

(Rees, 2008) and could thereby influence current levels of distress. Interestingly, the relationship between interpersonal trauma regardless of age and emotional distress was significant. This could be due to the considerable impact of the early interpersonal trauma and distress correlation within this relationship. It could also be due to the fact that more people had experienced early interpersonal trauma than adult interpersonal trauma (see Figure 1), so this also influenced the relationship.

The results with regard to trauma and emotional distress would indicate that relational trauma in particular leads to increased levels of emotional distress in comparison to general traumatic events, and more specifically that this relationship is significant when the interpersonal trauma is early as opposed to in adulthood. These findings fit with the TN model of trauma and psychosis and cognitive models of psychosis whereby early interpersonal trauma impacts on the development of emotional regulatory systems (TN model) and beliefs about others (cognitive model) resulting in distress in psychosis.

The relationship between current trauma symptoms and emotional distress was stronger than relationships between emotional distress and historical trauma (general and interpersonal). This could be because whilst anxiety and trauma symptomology are conceptualised differently, the symptoms and signs of both might demonstrate some overlap (Andrew *et al*., 2008).

4.5.2 Attachment and RF

In line with predictions there were high levels of insecure attachment. Fearful attachment was the predominant attachment style reported, consistent with reported frequencies by Dozier, Stovall and Albus (1999) based on samples of people with severe mental health problems. However there were different distributions of attachment organisation in the present study when compared to other relevant studies where prevalence of dismissing attachment was higher within a specifically first episode psychosis (FEP) population (MacBeth, Gumley, Schwannauer, & Fisher 2011). It is difficult to come to any firm conclusions regarding the consistency of these findings with other studies as in most previous studies which investigated attachment and psychosis (systematically reviewed in chapter one) specific attachment categories

were not measured. The focus was on underlying anxious and avoidant attachment dimensions.

From an IWMs perspective it would be consistent that people with high levels of interpersonal trauma would be likely to develop the belief that their sense of self and other were both negative, learned through these interpersonal trauma experiences (Penn et al., 1997). This would be consistent with insecure attachment IWMs, and specifically fearful attachment within the Bartholomew and Horowitz, (1991) model. However, MacBeth et al (2011) found that 50% of their sample indicated dismissive attachment. This may be due to the different sample characteristics and different methods of measuring attachment compared to this study. The concepts of fearful (measured by the RQ) and unresolved/disorganised attachment (measured by the AAI) do not fully map onto one another although they are similar (Berry, Barrowclough & Wearden, 2007). If the AAI had been used within the current sample it would be interesting to know if similar frequencies to MacBeth et al. (2011)'s study would have been found.

The results pertaining to RF scores lend support to results from other studies (MacBeth et al., 2011; Sherer-Dickson, 2010) indicating a predominance of low/questionable RF within this population. However, a relationship between RF and secure attachment was not found, as previously indicated by MacBeth et al., (2011). The lack of a linear relationship with emotional distress meant that mediation of RF could not be investigated. Future work is needed to better understand the role of RF in this population.

4.5.2.1 Correlations between attachment and emotional distress

In the current study those who reported higher anxiety in attachment relationships were more likely to experience higher current emotional distress. Secure attachment and avoidant attachment did not relate significantly to emotional distress. Theoretically, secure attachment should have a negative correlation with distress and although this relationship is not significant the correlation is indeed negative. Also, the finding that avoidant attachment style does not have a relationship with levels of emotional distress could be due to under-reporting of distress by avoidantly attached individuals (Berry,

2009). In addition, due to low levels of reported secure and avoidant attachment, these relationships may have been statistically underpowered and as such no correlation was demonstrated.

RF had no significant relationship with distress, but as previously indicated this relationship was non-linear. From consideration of scatter plots (appendix 4.1) it seems that people with low RF either reported high or low distress. People with higher levels of RF generally indicated lower distress. These results would obscure any statistically significant correlation within the analysis. However, it is clinically relevant as it could indicate that people with low RF are less able to regulate emotions and may considerably under-report emotional distress due to a lack of personal insight into their emotional experience. This would be part of an avoidant approach to coping and an inability to mentalise. Conversely, low RF may be associated with high reported distress in another sub group because of inadequate development of emotional regulatory strategies leading to a chaotic and overwhelmed approach to relating to emotional experience (Fonagy & Target, 1997).

4.5.3 Attachment and trauma

Current trauma symptoms (measured by the IES-R) correlated positively with anxious attachment. There was a lack of significant relationship between general early trauma and attachment. However, adult general trauma demonstrated a relationship with attachment (secure attachment having a negative correlation and anxious attachment having a positive correlation). Interpersonal trauma had significant relationships with attachment dimensions. As with general trauma, the hypotheses were specifically interested in early interpersonal trauma, but a relationship was also found between interpersonal trauma regardless of age and interpersonal trauma in adulthood. These were in the expected directions with interpersonal trauma negatively correlated with security in attachment and positively correlated with anxiety in attachment relationships. These findings are in line with those of Picken, Berry, Tarrier, and Barrowclough, (2010) which showed a relationship between stressful life events and insecure attachment. Avoidant attachment was not significantly correlated with any kind or stage of trauma. The lack of a significant relationship between avoidant

attachment and interpersonal trauma was also found by Berry et al. (2009). The lack of relationship between avoidant attachment and trauma in the current study could be due to underreporting of distress by people with avoidant attachment, indicating that they may not deem events to be traumatic that in fact were so (due to emotional disconnection at the time through avoidance strategies). Another explanation is that the event was perceived as traumatic at the time, but subsequently the individual avoids recalling or reporting this, also indicting use of avoidance strategies.

The evidence of a relationship between anxious attachment and early interpersonal trauma found in the current study lends further support to the assertion that interpersonal trauma in childhood is a determinant of anxious attachment in adulthood. A similar relationship was also found by Berry et al. (2009) when trauma was related to significant others in childhood, although this became insignificant when affect was controlled for. The current study did not look specifically at relationships with significant others and also used affect as an outcome measure, so direct comparison with this finding is precluded.

4.5.4 Attachment as a mediator of the relationship between trauma and distress in psychosis

The direct relationship between current trauma symptoms and current emotional distress was strong. This may account for the lack of mediation effects of attachment. This could also be due to overlaps in the symptoms relevant to measuring current trauma symptoms and anxiety (part of the outcome measure) and as such this may have confounded this pathway and not allowed for effects of attachment to be evidenced.

The only significant full mediation effect by attachment was between interpersonal trauma regardless of age and emotional distress. This finding indicates that within the sample interpersonal trauma regardless of age is associated with increased levels of anxious attachment which in turn leads to increased levels of emotional distress (assuming theoretical links). Interestingly attachment did not fully mediate the relationship between early interpersonal trauma and distress. However, results do indicate a moderation effect of anxious attachment on emotional distress with increased levels of anxious attachment leading to increased levels of emotional distress. This

would suggest that the effect of anxious attachment as a mediator is significant regardless of age of interpersonal trauma (Penn et al., 1997) but not if the interpersonal trauma occurs in early life only. This relationship is complex (Berry et al., 2009) as trauma does not often occur in isolation at a specific life stage, and as such it may be difficult to isolate early interpersonal trauma effects. In addition, whilst the foundations of attachment organisation are laid in early years, interpersonal interactions over the lifespan continue to influence attachment organisation. This may explain why the mediation effect occurs regardless of age. In summary, findings indicate the importance of recognising interpersonal trauma and addressing negative and insecure IWMs of the individual for effective treatment of emotional distress in psychosis.

Secure attachment was significantly negatively correlated with higher levels of both early interpersonal trauma and interpersonal trauma regardless of age. However it did not fully mediate the relationship to emotional distress. This indicates lower levels of early interpersonal trauma and interpersonal trauma regardless of age result in a more secure attachment based on theoretical assumptions. Whilst this makes sense, the finding that secure attachment status does not affect distress levels is less intuitive. However, it is relevant to note that the negative correlation indicates the relationship is in the theoretically indicated direction (Aspelmeier, Elliot & Smith, 2007). This finding could be related to low levels of secure attachment within the sample and low levels of statistical power resulting in a Type II error.

Although postulations regarding directions of influence can be made based on attachment theory this is a cross-sectional study. As such directions of influence cannot be demonstrated using this methodology alone. In addition, there is the potential that other relevant mediators have not been included. Further limitations of the study will be discussed below. Nonetheless, given the stage of research in this area, it is considered that the present study makes a worthwhile contribution to understanding in the field.

4.5.5 Limitations[17]

There are various limitations to the current study to be considered. Firstly, a reason for lack of full mediation effects by anxious attachment between early interpersonal trauma and emotional distress could be due to lack of statistical power within the study. Although a good number of measures were completed given the perceived constraints of research with this population, the sample was smaller than planned due to challenges of recruitment. This increases the possibility of Type II errors. Secondly, individuals who took part were those chosen by clinicians who may have selected people, based on their clinical stability and perceived ability to engage with the study, from within a broader pool of individuals who would have been eligible. This means that the sample may not be representative of a psychosis sample and thus have led to bias. In relation to this a third limitation was that the sample was heterogeneous in diagnoses and also potentially in terms of chronicity and severity, although these were not measured. It would have been beneficial to measure chronicity by time since first episode, number of hospitalisations and other such factors to see if these had an impact on outcome.

A fourth limitation pertains to the measures used within the study and the fact that measuring psychological concepts by way of concrete measures can create confounding factors. For example, current trauma symptoms have been said to overlap with psychotic symptoms so this measure may not be truly measuring current trauma, but also psychosis symptomology (Gumley et al., 2004). This may account for the strong relationship between current trauma symptoms and emotional distress, along with the overlap in current trauma and anxiety concepts as previously noted (Andrew et al., 2008).

The use of the THQ and the derivation of various types of trauma based on this instrument (interpersonal, general, regardless of age, early and adult) has potential limitations such as the definition of early trauma as age 16 and below being somewhat arbitrary. As noted, previous studies have used this definition (e.g. Houston, Murphy, Shevlin & Adamson, 2011) although the impact of trauma may be different at different developmental stages related to neurology and brain development (Read van Os, Morrison & Ross, 2005) which may be an avenue for further research.

[17] See extended discussion section of thesis for further detail of limitations that are not within the scope of this article

The lack of relationships between relevant variables and avoidant attachment due to potential underreporting could perhaps be better assessed with a narrative measure such as the AAI that taps into unconscious representations of attachments. This method was not chosen within the current study due to resource limitations and burden to participants, but could be considered in future research as it has been found to be reliable within psychosis populations (MacBeth et al., 2011). The measurement of RF may have been limited in the present study due to the extraction and use of the demand questions from the AAI. This may have resulted in a lack of contextual information and ability of the participant to reflect on questions fully.

The current study clearly points to a relationship between trauma and emotional distress conceptualised as depression and anxiety. Further investigation of emotional regulation may give more insight into the specific links between trauma, attachment and emotional regulation, links that may have been lost through equating emotional distress with anxiety and depression.

Finally, as previously noted the cross-sectional nature of this study precludes firm assertions being made as to the direction of the associations between variables. As noted by Picken et al. (2010) it is likely that relationships between trauma and attachment are bidirectional with interpersonal trauma driving anxious attachment and anxious attachment affecting how trauma is perceived and responded to. Further larger scale research could lead to specific path model analysis to ascertain the directions of these relationships in more detail.

4.5.6 Theoretical and clinical implications

The current study is initial evidence in support of trauma and attachment being relevant predictors of emotional distress for people with psychosis. Currently CBT is the main evidence-based/recommended psychological therapy for psychosis. It mainly focuses on symptom reduction, and often has little impact on social functioning (Penn et al., 2004). The findings of this study offer further evidence of the need already identified within the literature (MacBeth et al., 2011) to integrate attachment and trauma based therapeutic strategies for individuals with psychosis - as with other clinical populations - and move away from a purely symptom based approach. Paying attention to these

aspects is also important when considering attachment within the therapeutic relationship (Schmitt, Lahti & Piha, 2008) in that the therapeutic relationship can help the patient to develop new ways of relating to others which can in turn impact positively on emotional distress. On a more general level, knowledge of the attachment models of individual patients would enable all health professionals involved to reflect on and manage their relationships with clients more effectively (Van Eck, 1982). Ultimately this would aid engagement of an individual with insecure attachment representations. As such the current study supports the need for formulation driven approaches taking into account the effect of trauma and attachment specifically for people with psychosis (Bendall, Jackson, & Hulbert, 2010).

4.6 Conclusions

Results of the current study clearly indicate high levels of general and interpersonal trauma, insecure attachment and emotional distress and low levels of RF within a psychosis sample. Furthermore, mediation of the relationship between interpersonal trauma and emotional distress by anxious attachment was evidenced with other partial effects of attachment demonstrated.

These findings lend support to developmental and cognitive models implicating trauma in psychosis previously discussed. More specifically, findings of this study lend support to the idea that it is specifically interpersonal trauma that influences attachment organisation by affecting IWMs of self and others, resulting in an anxious attachment organisation. Beliefs about others as threatening and untrustworthy maintain these IWMs. Within a cognitive framework biased interpretation of events based on these previous experiences will perpetuate emotional distress associated with these IWMs and belief systems. Thus attachment appears to play a significant role in the relationship between trauma and emotional distress for people experiencing psychosis.

Results highlight the need for future research within this area to look more closely at this relationship and to disentangle differential effects of early interpersonal trauma from interpersonal trauma throughout the lifespan. In addition, further understanding of the different effects of chronic interpersonal trauma verses one off interpersonal trauma for people with subsequent diagnoses incorporating psychosis may shed more light on

risk factors pertaining to insecure attachment and emotional distress within this population Future research could also investigate more specifically where attachment and reflective functioning processes fit developmentally into current models of psychosis and trauma. This could potentially be done by being more specific about the age of early trauma in line with developmental stages, rather than a rather arbitrary cut off of 16 years old.

Traditionally the psychoses have been considered biomedical disorders (Hammersley, 2004) and it is only recently that research has galvanized into addressing this gap in the literature. This study supports the assertion that interpersonal trauma impacts on distress within psychosis, and to conceptualise psychosis as purely biomedical is inaccurate. It seems that mental health professionals need to develop both the confidence and the skills to enquire about the history of individuals with psychosis and then how to respond to disclosures (Read, 2006). More research is needed to influence the way psychotic disorders are conceptualised among health professional training to both recognise the influence of these fundamental developmental factors and develop skills to handle disclosures. Future longitudinal large sample based research would help further understanding of these processes.

4.7 Acknowledgements

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Chapter 5. Extended Results

This chapter extends the results within the previous chapter (journal article).

5.1 Attrition rates

There were 80 people who were referred into the study in total. Of these 30 people did not attend initial meetings or subsequent ones organised with the principal investigator. Nine did not complete a full set of measures; One participant said that they would rather not answer the AAI questions they were too personal and a further seven participants said that they wanted to discontinue after completing some of the measures for differing reasons (which cannot be given as they chose to no longer be included in the study). The principal researcher deemed one participant too distressed to continue due to their personal circumstances and this person's keyworker was contacted. Those who declined to continue, even though partial measures were filled in, are not included in the analysis due to their request to discontinue and not be included in the study as per informed consent protocol.

5.2 Further information derived from the IES-R

Additional to the results regarding current trauma symptoms previously presented and discussed in chapter four, the frequency of the type of events to be causing current trauma symptoms are described in table 5.1. Trauma related to psychotic symptoms and abuse events was the event chosen by over 50% of the sample relevant to current trauma symptoms.

Table 5.1 Frequency of type of event described in IES-R

Type of event	Frequency
Psychosis/event related to psychotic symptoms	13
Abuse	13
Death of a family member	7
Death of a child	3
Physical illness	2
No event identified	1
Not filled in	1

5.3 Further information derived from the THQ

Appendix 5.2 indicates the breakdown if frequencies for each item within the THQ. The breakdown of cumulative frequencies of sexual, physical and total interpersonal trauma in the sample can be seen in table 5.2. 39.2% of the sample reported some form of child sexual abuse (CSA) and 62.7% reporting child physical abuse (CPA) The overall rate of interpersonal trauma (regardless of age) in the current sample is high at 84.3%.

Table 5.2. Cumulative sexual, physical and interpersonal trauma in the sample.

Number of each type of traumas as defined by THQ	**Early**	**Adult**	**Total irrespective of age**
Sexual trauma			
0	60.8% (n=31)	66.7% (n=34)	43.1% (n=22)
1	19.6% (n= 10)	21.6% (n =11)	23.5% (n=12)
2	15.7% (n=8)	9.8% (n=5)	19.6% (n=10)
3	3.9% (n=2)	2% (n=1)	13.7% (n =7)
Physical trauma			
0	37.3% (n= 19)	56.9% (n=29)	27.5% (n=14)
1	35.3% (n=18)	27.5% (n=14)	19.6% (n=10)
2	25.5% (n=13)	13.7% (n=7)	35.3% (n=18)
3	2.0% (n=1)	2.0% (n=2)	17.6% (n=9)
Interpersonal trauma (sexual and physical)			
0	25.5% (n= 13)	41.2% (n= 21)	15.7% (n= 8)
1	29.4% (n=15)	25.5% (n= 13)	13.7% (n 7)
2	21.6% (n= 11)	21.6% (n= 11)	21.6% (n= 11)
3	13.7% (n= 7)	9.8% (n= 5)	23.5% (n= 12)
4	7.8% (n= 4)	-	9.8% (n= 5)
5	2.0% (n= 1)	2.0% (n= 1)	13.7% (n= 7)
6	-	-	2.0% (n=1)

5.4 Normality of the data

The two central ways in which a sample distribution can deviate from normality are skewness and Kurtosis. Skewness refers to distributions that are clustered at one end or the other and thus not symmetrical. Kurtosis refers to flat or narrow distributions in which scores may be spread evenly or clustered around the mean value.

Values of skewness and kurtosis and respective standard errors (SE) were obtained from the descriptive statistics and converted to standardised Z-scores using the formula in Field (2009) whereby the skewness or kurtosis statistic is divided by its respective SE. These data are in table 5.3 for all the continuous measures. The further a Z-score is from zero indicates with increased likelihood sample is not normally distributed. When Z-scores are compared to a normal distribution and it is suggested that a Z-score over +/- 1.96 indicates the distribution for a particular measure is significantly different to a normal distribution at the $p<.05$ level (+/- 2.58 at the $p< .01$ level).

Table 5.3 Skewness and kurtosis for variables used in analysis

Variable	Skewness		Kurtosis		Z scores	
	Value	SE	Value	SE	Skewness	Kurtosis
Total emotional distress (using refined CDSS6A)(n=51)	.565	.333	-.351	.656	1.697	-.535
BAI (n=51)	.597	.333	-.398	.656	1.793	-.607
CDSS6A (n=51)	.593	.333	-.664	.656	1.781	-1.012
IES-R (n=50)	.292	.337	-.199	.662	.866	-.301
RF (n=51)	.893	.333	.537	.656	2.682*	.819
RQ (n= 51)						
RQ secure attachment (n=51)	.172	.333	-1.191	.656	.517	-1.814
Dimension: avoidant attachment (n= 51)	-.064	.333	-.207	.656	-.192	-.0316
Dimension: anxious attachment (n= 51)	.219	.333	-.989	.656	.658	.997
THQ (n= 51)						
THQ Total trauma	-.023	.333	-.846	.656	-.069	-1.290
THQ Total early trauma	.632	.333	-.060	.656	1.89	-0.091
THQ Total adult trauma	.062	.333	-.629	.656	.186	-.959
THQ interpersonal trauma regardless of age	.148	.333	-.841	.656	.444	-1.282
THQ early interpersonal trauma	.631	.333	-.362	.656	1.895	-.552
THQ adult interpersonal trauma	1.032	.333	1.008	.656	3.099*	1.536

*indicates Z-score is significantly different from a normal distribution above $p<.01$

As is indicated by the Z-scores in table 5.3 the RF measure and the THQ adult interpersonal trauma variable appeared to have distributions significantly different from normality. Looking at distribution of these scores graphically indicated the RF measure had a skew towards lower scores indicating lower RF in the sample. Adult interpersonal trauma was skewed towards the lower end of the distribution indicating low levels of adult interpersonal trauma.

5.4.1 Data transformations

In order to transform the data for the skewed RF and THQ adult interpersonal trauma variables log transformations (as suggested by Field, 2009) were performed and

normality tests re-run and z-scores recomputed. Transformations were successful in producing non-skewed data for the RF and *THQ adult interpersonal trauma* variables so these transformed variables were used for the main analysis (see appendix 5.1 for transformed z-scores).

Mediation analyses were run with both non-transformed and transformed variables with little difference but data using the transformed scores are used for robustness.

5.5 Testing for covariance between demographic and dependent variables

Analyses were carried out to establish whether the demographic variables collected related to scores on the dependent variable. If a relationship was found between either or both demographic variables and emotional distress either or both demographic variable would need to be included in the mediation to control for their potential effects.

5.5.1 Age

A Pearson correlation (2-tailed) calculation was carried out to see if a relationship between distress and age was present. This relationship was insignificant (r= .063, *ns*).

5.5.2 Gender

As gender is a categorical demographic variable the potential correlation between gender and emotional distress was investigated by way of an independent sample t-test. The Levene's test was insignificant (F = 1.143, *ns*) indicating equality of variance. With equality of variances assumed the relationship between gender and emotional distress just reached significance at the 0.05 alpha level (t= 2.033, *p* =.047). Female participants tended to report significantly higher levels of distress on the emotional distress variable (M = 32.41, SD = 18.38) compared to male participants (M = 23.07, SD = 14.44). Therefore gender would be appropriate to include in the mediation analyses as a covariate.

Chapter 6. Extended Discussion

This chapter extends discussion of points made in the discussion of the results within the journal article (chapter four) where scope of the journal article did not allow for some points to be fully developed. Firstly there will be a brief discussion of further information derived from the trauma measures in the extended results section (chapter five).

6.1 Brief comment on extended results

6.1.1 Further information derived from the IES-R

Results showing that 25% of the sample chose to rate current trauma symptoms related to psychotic symptoms on the IES-R are in line with other studies where empirical evidence shows experience of psychosis itself is deemed to be considered a traumatic event (Shaw et al., 2002). This indicates that psychotic symptoms themselves should be considered as traumatic events in the therapeutic work with people with these types of diagnoses.

6.1.2 Further information derived from the THQ

The incidence of sexual, physical and total interpersonal trauma in the sample (table 5.2) in the current study is higher than 19.8% (CSA) and 13.6% (CPA) reported by Ucok and, Bıkmaz (2007) in a FEP sample. Read *et al*. (2005) found weighted averages of 35.5% for early interpersonal trauma (CSA + CPA pre 16 years) for females and 19.9% for males within the studies involving over 50% psychosis patients they reviewed which, again is lower than in the current study. The overall rate of interpersonal trauma regardless of age in the current sample is high at 84.3%. This is further evidence of the high level of early abusive experiences that were reported in the current study. This could mean that the sample in the current study might reflect a population with higher levels of early abuse and interpersonal trauma compared to other studies. Additionally, it could reflect a bias in referrals whereby people with known trauma histories were referred by professionals because the professionals involved

knew this was part of the study, even though trauma history was not an inclusion criteria.

6.2 Further reflections on study methodology

6.2.1 Sample size

As discussed within chapter four a lack of statistical power within the study due to the sample size may have been one of the reasons for an incomplete mediation between early interpersonal trauma and emotional distress (Type II error). Challenges of recruitment are discussed below.

6.2.1.1 Challenges of recruitment

A considerable level of effort was put into supporting recruitment by the principal investigator through attendance at Locality Mental Health Team (LMHT) meetings in the first instance over three health boards plus at outreach team meetings to present the research in addition to considerable direct contact with consultant psychiatrists and psychologists. Regular attendance at the LMHTs occurred in order to keep the study on the agenda and thereby promote recruitment. In addition attendance at inpatient psychiatric clinics on a regular basis to remind key workers of the study was also prioritised. There were some comments from a small number of mental health professional stating the view that recruitment would be very challenging because people with psychosis "did not engage" with services. This was not the message from all professionals, but it was a considerable barrier to recruitment in some services.

These challenges appeared to be part of the process in recruitment of a population with relatively severe psychiatric diagnoses. The principle investigator did not see these perceptions of poor potential for engagement as a reason to not investigate important phenomena in a psychosis population (who could give consent).

Informal communication with staff was also paramount in reminding them about referrals because identifying potential participants on top of their regular clinical work load was understandably not a priority. As such other professionals' consideration of

eligible individuals and discussion of the study with them was highly valued. All referrals to the study were greatly appreciated and the number of participants recruited to the study reflects a considerable amount of time and effort on the part of the principle investigator and various other healthcare professionals who were supportive of the study.

6.2.2 Measures

6.2.2.1 Current trauma as measured by the IES-R

The IES-R was chosen to measure current trauma, but when compared to the THQ it uses a different indicator of trauma (symptoms as opposed to incidence of traumatic experiences) and therefore the two instruments may not yield consistent results. This may have influenced on the strong relationship between current trauma and emotional distress as they are both symptom measures of distress.

The potential confounding relationship between current trauma symptoms and psychotic symptomology was noted in chapter four as a potential reason for such a string relationship between the two variables. A way to overcome the potential confounding relationship would be to measure psychotic symptomatology and see how much this impacts on the IES-R scores, and subsequent relationship with emotional distress.

6.2.2.2 Trauma as measured by the THQ

In recognition of the relevance of the chronic verses. acute dimension of trauma to subsequent psychopathology, this study considered taking account of this aspect of trauma experience. However, due to the sample size it was decided this level of category breakdown would yield underpowered results, so chronic verses acute early interpersonal trauma was not investigated. It has been documented that exposure to chronic trauma may have differing and longer lasting effects than a one off incident. As such, further larger scale studies specifically investigating different chronicity of trauma

at developmentally intuitive stages may be a more robust way to examine effects of early trauma.

Furthermore, with regards to early interpersonal trauma the current study used part of the THQ which was limited to six questions. Measures that are more specific regarding certain aspects of abuse experiences (including neglect and emotional abuse) may capture a more comprehensive picture of early interpersonal trauma and as such be more robust within mediation analyses.

6.2.2.3 Reflective Functioning as measured by Demand Questions of the AAI

The sole use of demand questions from the AAI in the current study is not the standard way in which RF is measured. This may call into question the reliability of its use within this study, however the coding framework of RF (Fonagy et al., 1998) has been used to assess RF of therapy narratives out with the AAI context in other studies (D'Angelo, 2007; Karlsson & Kermott, 2006) and RF in general using just two demand questions (Scherer-Dickson, 2010) which indicated construct validity. Ordinarily RF would be measured using the demand questions (Fonagy et al., 1998) in the context of the whole AAI. Thus the individual has a context in which they are socialised into a narrative where they are being asked to reflect on their experiences. This is the way in which RF is coded in the standardised use of this measure, so if the whole AAI had been used within the study it may have generated different RF scores. To take this one step further, if people were more socialised into the idea of reflecting by using the whole measure, this may mean the results may have indicated higher levels of RF in the study.

Other factors such as cognitive ability and personality characteristics such as neuroticism could potentially correlate with RF and thus should be considered in the context of the current study. Within the field of psychosis RF is in the relatively early stages of investigation and to the author's knowledge cognitive and personality factors have not been investigated concurrently with RF. In a study which examined the association between RF (measured using a narrative approach) and executive cognitive functioning in adults without psychosis (Capstick, 2008) it was found that executive functioning did not correlate with RF. Executive functioning has been shown to be affected in psychosis populations (Green et al., 2004). However, it would seem that

these potential difficulties would not affect the reliability of the RF measure (according to current evidence available). The author could not find any information regarding personality characteristics and RF within the literature other than from the RF manual (Fonagy et al., 1998) in which the London Parent Project (Fonagy et al., 1991) found no relationship between neuroticism and RF, indicating these concepts are distinct.

6.2.2.4 Outcome measure

Further to discussion of outcome measures in chapter four, specific emotional regulation scales such as the. *difficulties in emotion regulation scale* (Gratz & Roemwe, 2004) and the *regulation of emotions questionnaire* (Philips & Power, 2007) may be considered in future research. As previously noted these types of measures may capture specific processes that are implicated in the relationship attachment has with emotional distress in the context of interpersonal trauma.

Other potential outcomes that could have been used to provide a measure of the impact of difficulties/functional outcomes include hospital admissions, chronicity, valued living, and quality of life.

6.3 Strengths of the current study

The current study had several strengths. Firstly the present study adds to the evidence base of a complex area of research regarding attachment and trauma and does not rely on student populations to look at these links, but uses a clinical population. Secondly the research was carried out over a varied geographical region incorporating rural and urban areas, with a diverse sample of clinical participants who present to mental health professionals in day-to-day practice, indicating high ecological validity. As such the results of this study extend work that has been previously carried out with psychosis populations. Thirdly participants were given support to complete measures which should enhance their understanding of potentially complex measures, and therefore reliability of report. Fourthly high levels of disclosure of trauma suggest participants felt comfortable in sharing information which adds to the strength of current findings.

A fifth strength is that the regression analysis used bootstrapping methods which has been shown to have the highest power and best controls for type 1 error (Hayes, 2009) compared to other methods of mediation analysis such as the Baron and Kenny (1986) method.

Finally, and importantly, this study (as with a lot of other research in the area) goes some way to dispel myths that clients with psychosis are too fragile/vulnerable to approach issues about trauma and attachment.

6.4 Future research directions

Along with future research directions mentioned in other sections (mainly chapter four), even though this research was carried out across a varied geographical area, a more comprehensive study incorporating more services (both NHS and voluntary) would be useful. Additionally, further research in the area of abuse and psychosis would benefit from asking about the experiences of service users in disclosing abuse. This would ideally be carried out using qualitative research methods to ensure that all views and experiences are being sought. In addition, further understanding of health practitioners' beliefs regarding trauma in psychosis may add to understanding about beliefs and barriers associated with asking about this in psychosis populations. This would ultimately mean a better service could be provided to this population where there are clearly high levels of trauma and associated distress which are amenable to therapeutic input which may not be as fully recognised as with other clinical populations.

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List of Appendices

Appendix 1. Submission guidelines for Clinical Psychology review

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Appendix 3.1. Calgary Depression Scale for Schizophrenics-

Calgary Depression Scale

Interviewer: Ask the first question as written. Use follow up probes or qualifiers at your discretion. Time frame refers to last two weeks unless stipulated. **N.B.** The last item, #9, is based on observations of the entire interview.

1. DEPRESSION: How would you describe your mood over the last two weeks? Do you keep reasonably cheerful or have you been very depressed or low spirited recently? In the last two weeks how often have you (own words) every day? All day?

0. Absent
1. Mild Expresses some sadness or discouragement on questioning.
2. Moderate Distinct depressed mood persisting up to half the time over last 2 weeks: present daily.
3. Severe Markedly depressed mood persisting daily over half the time interfering with normal motor and social functioning.

2. HOPELESSNESS: How do you see the future for yourself? Can you see any future? - or has life seemed quite hopeless? Have you given up or does there still seem some reason for trying?

0. Absent
1. Mild Has at times felt hopeless over the last two weeks but still has some degree of hope for the future.
2. Moderate Persistent, moderate sense of hopelessness over last week. Can be persuaded to acknowledge possibility of things being better.
3. Severe Persisting and distressing sense of hopelessness.

3. SELF DEPRECIATION: What is your opinion of your self compared to other people? Do you feel better, not as good, or about the same as others? Do you feel inferior or even worthless?

0. Absent
1. Mild Some inferiority; not amounting to feeling of worthlessness.
2. Moderate Subject feels worthless, but less than 50% of the time.
3. Severe Subject feels worthless more than 50% of the time. May be challenged to acknowledge otherwise.

4. GUILTY IDEAS OF REFERENCE: Do you have the feeling that you are being blamed for something or even wrongly accused? What about? (Do not include justifiable blame or accusation. Exclude delusions of guilt.)

0. Absent

1. Mild Subject feels blamed but not accused less than 50% of the time.

2. Moderate Persisting sense of being blamed, and/or occasional sense of being accused.

3. Severe Persistent sense of being accused. When challenged, acknowledges that it is not so.

5. PATHOLOGICAL GUILT: Do you tend to blame yourself for little things you may have done in the past? Do you think that you deserve to be so concerned about this?

0. Absent

1. Mild Subject sometimes feels over guilty about some minor peccadillo, but less than 50% of time.

2. Moderate Subject usually (over 50% of time) feels guilty about past actions the significance of which he exaggerates.

3. Severe Subject usually feels s/he is to blame for everything that has gone wrong, even when not his/her fault.

6. MORNING DEPRESSION: When you have felt depressed over the last 2 weeks have you noticed the depression being worse at any particular time of day?

0. Absent No depression.

1. Mild Depression present but no diurnal variation.

2. Moderate Depression spontaneously mentioned to be worse in a.m.

3. Severe Depression markedly worse in a.m., with impaired functioning which improves in p.m.

7. EARLY WAKENING: Do you wake earlier in the morning than is normal for you? How many times a week does this happen?

0. Absent No early wakening.

1. Mild Occasionally wakes (up to twice weekly) 1 hour or more before normal time to wake or alarm time.

2. Moderate Often wakes early (up to 5 times weekly) 1 hour or more before normal time to wake or alarm.

3. Severe Daily wakes 1 hour or more before normal time.

8. SUICIDE: Have you felt that life wasn't worth living? Did you ever feel like ending it all? What did you think you might do? Did you actually try?

0. Absent

1. Mild Frequent thoughts of being better off dead, or occasional thoughts of suicide.

2. Moderate Deliberately considered suicide with a plan, but made no attempt.

3. Severe Suicidal attempt apparently designed to end in death (i.e.: accidental discovery or inefficient means).

9. OBSERVED DEPRESSION: Based on interviewer's observations during the entire interview. The question "Do you feel like crying?" used at appropriate points in the interview, may elicit information useful to this observation.

0. Absent

1. Mild Subject appears sad and mournful even during parts of the interview, involving affectively neutral discussion.

2. Moderate Subject appears sad and mournful throughout the interview, with gloomy monotonous voice and is tearful or close to tears at times.

3. Severe Subject chokes on distressing topics, frequently sighs deeply and cries openly, or is persistently in a state of frozen misery if examiner is sure that this is present.

Item 6A

0. Absent No depression.

1. Mild Depression present but no diurnal variation.

2. Moderate Depression spontaneously mentioned to be worse in p.m. or depression spontaneously mentioned to be worse in the a.m.

3. Severe impaired functioning as the day goes on, with depression markedly worse in the p.m. or Depression markedly worse in a.m., with impaired functioning which improves in p.m.

Appendix 3.2. Impact of Events Scale- Revised

Impact of Event Scale – Revised

INSTRUCTIONS: Below is a list of difficulties people sometimes have after stressful life events. Please read each item, and then indicate how distressing each difficulty has been for you DURING THE PAST SEVEN DAYS with respect to _____, which occurred on _____. How much were you distressed or bothered by these difficulties?

0 = Not at all; 1 = A little bit; 2 = Moderately; 3 = Quite a bit; 4 = Extremely.

1. Any reminder brought back feelings about it.	
2. I had trouble staying asleep.	
3. Other things kept making me think about it.	
4. I felt irritable and angry.	
5. I avoided letting myself get upset when I thought about it or was reminded of it.	
6. I thought about it when I didn't mean to.	
7. I felt as if it hadn't happened or wasn't real.	
8. I stayed away from reminders of it.	
9. Pictures about it popped into my mind.	
10. I was jumpy and easily startled.	
11. I tried not to think about it.	
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them.	
13. My feelings about it were kind of numb.	
14. I found myself acting or feeling like I was back at that time.	
15. I had trouble falling asleep.	
16. I had waves of strong feelings about it.	
17. I tried to remove it from my memory.	
18. I had trouble concentrating.	
19. Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart.	
20. I had dreams about it.	
21. I felt watchful and on-guard.	
22. I tried not to talk about it.	

Total IES-R score:_____

Contact Information: Daniel S. Weiss, Ph.D., Professor of Medical Psychology,

Appendix 3.3 – Trauma History Questionnaire

TRAUMA HISTORY QUESTIONNAIRE

The following is a series of questions about serious or traumatic life events. These types of events actually occur with some regularity, although we would like to believe they are rare, and they affect how people feel about, react to, and/or think about things subsequently. Knowing about the occurrence of such events, and reactions to them, will help us to develop programs for prevention, education, and other services. The questionnaire is divided into questions covering crime experiences, general disaster and trauma questions, and questions about physical and sexual experiences.

For each event, please indicate (circle) whether it happened, and if it did, the number of times and your approximate age when it happened (give your best guess if you are not sure). Also note the nature of your relationship to the person involved, and the specific nature of the event, if appropriate.

Crime-Related Events

		If Yes	
		# of Times	Approx. Age
1. Has anyone ever tried to take something directly from you by using force or the threat of force, such as a stick-up or mugging?	No Yes	_____	_____
2.Has anyone ever attempted to rob you or actually robbed you i.e. stolen your personal belongings)?	No Yes	_____	_____
3.Has anyone ever attempted to or succeeded in breaking into your home when you weren't there?	No Yes	_____	_____
4.Has anyone ever tried to or succeeded in breaking into your home while you were there?	No Yes	_____	_____

General Disaster and Trauma

5. Have you ever had a serious accident at work, in a car or somewhere else?	No Yes	_____	_____
If yes, please specify			

_____

Green/GUMC

		If Yes # of Times	If Yes Approx. Age
6.Have you ever experienced a natural disaster such as a tornado, hurricane, flood, major earthquake, etc., where you felt you or your loved ones were in danger of death or injury?	No Yes	_____	_____
If yes, please specify _____			
7. Have you ever experienced a "man-made" disaster such as a train crash, building collapse, bank robbery, fire, etc., where you felt you or your loved ones were in danger of death or injury?	No Yes	_____	_____
If yes, please specify			
8. Have you ever been exposed to dangerous chemicals or radioactivity that might threaten your health?	No Yes	_____	_____
9. Have you ever been in any other situation in which you were seriously injured?	No Yes	_____	_____
If yes, please specify _____			
10. Have you ever been in any other situation in which you feared you might be killed or seriously injured?	No Yes	_____	_____
If yes, please specify _____			
11. Have you ever seen someone seriously injured or killed?	No Yes	_____	_____
If yes, please specify who _____			

		If Yes # of Times	If Yes Approx. Age
12. Have you ever seen dead bodies (other than at a funeral) or had to handle dead bodies for any reason?	No Yes	_____	_____
If yes, please specify _____			
13.Have you ever had a close friend or family member murdered, or killed by a drunk driver?	No Yes	_____	_____
If yes, please specify relationship (e.g.mother, grandson,etc.)_____ _____			
14.Have you ever had a spouse, romantic partner, or child die?	No Yes	_____	_____
If yes, please specify relationship_____			
15.Have you ever had a serious or life-threatening illness?	No Yes	_____	_____
If yes, please specify _____			
16.Have you ever received news of a serious injury, life-threatening illness or unexpected death of someone close to you?			
If yes, please indicate _____ _____	No Yes	_____	____
17.Have you ever had to engage in combat while in military service in an official or unofficial war zone?	No Yes	_____	____
If yes, please indicate where. _____			

Physical and Sexual Experiences

	If Yes Was it repeated?	If Yes Approx. how often & what

Age(s)

18. Has anyone ever made you have intercourse, oral or anal sex against your will? No Yes _____ _____

If yes, please indicate nature of relationship with person (e.g. stranger, friend, relative, parent, sibling)_____

19. Has anyone ever touched private parts of your body, or made you touch theirs, under force or threat? No Yes _____ _____

If yes, please indicate nature of relationship with person (e.g. stranger, friend, relative, parent, sibling)

_____

20. Other than incidents mentioned in Questions 18 and 19, have there been any other situations in which another person tried to force you to have unwanted sexual contact? No Yes _____ _____

21. Has anyone, including family members or friends, ever attacked you with a gun, knife or some other weapon? No Yes _____ _____

22. Has anyone, including family members or friends, ever attacked you without a weapon and seriously injured you? No Yes _____ _____

23. Has anyone in your family ever beaten, "spanked" or pushed you hard enough to cause injury? No Yes _____ _____

Other Events

24. Have you experienced any other extraordinarily stressful situation or event that is not covered above? No Yes _____ _____

If yes, please specify.

_____

Appendix 3.4. Relationship Questionnaire

RELATIONSHIP QUESTIONNAIRE

PLEASE READ THE DIRECTIONS

1. Following are descriptions of four general relationship styles that people often report.

Please read each description and **CIRCLE** the letter corresponding to the style that *best* describes you or is *closest* to the way you generally are in your close relationships.

A. It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me.

B. I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.

C. I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.

D. I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.

2. Please rate each of the following relationship styles according to the *extent* to which you think each description corresponds to your general relationship style.

A. It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me.

B. I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.

C. I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.

D. I am comfortable without close emotional relationships, It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.

	Not at all like me			**Somewhat like me**			**Very much like me**
Style A.	1	2	3	4	5	6	7
Style B.	1	2	3	4	5	6	7
Style C.	1	2	3	4	5	6	7
Style D.	1	2	3	4	5	6	7

Appendix 3.5 Reflective functioning questions from the Adult Attachment Interview

1. Could you tell me to which parent (or carer) you were closest to and why? (and why there is not this feeling with the other parent?)

2. Why do you think your parents behaved as they did during your childhood?

3. In general, how to do you think your overall experiences with your parents (or carers) have affected your (adult) personality?

4. Are there any aspects to your early experience that you feel were a setback in your development?

If the participant has named one or two setbacks the follow-up probe used is:

Are there any other aspects of your early experiences that you think might have held your development back, or had a negative effect on the way you turned out?

If the participant has understood the question but has not considered anything about early experiences the follow up probe used is:

Is there anything about your early experiences that you think might have held your development back or had a negative effect on the way you turned out?

5. Do you think your childhood experiences have an influence on how you are today?

Appendix 3.6. Professionals' information form

Study Investigating Attachment, Life Experience Distress in Psychosis

Information

The project

This research (approved by NHS ethics and NHS Fife R&D) will investigate whether the quality of the relationship that adults with psychosis have experienced during childhood development (quality of early attachment) affects the way they respond to life experiences and psychotic experience.
Previous research has indicated that this attachment pattern may affect how people then go onto process life experiences and impacts on future relationships because poor attachment leads to poor emotional regulation and more emotional distress.

What is the benefit of this research?

·Giving clients a voice in contributing to research that informs their care.
·Increasing the understanding of the factors which influence distress for people with psychosis.
·Increasing the understanding of how a person relates to others and processes life events and how these interact for people with psychosis.
·learning what can be targeted in promoting recovery and alleviating emotional distress for people with psychosis.
·Using the understanding gained to inform different approaches to alleviating distress and helping people engage better in mental health services through helping target specific attachment related issues within therapy and more generally.

Who to refer to the study?

Anybody with a diagnosis of psychosis who is deemed to have capacity to consent is appropriate to be referred to the study. I am hoping to get at least 42 people to take part in the research.

What happens to people in the study?

People will meet with Lucy Clark (principal investigator) for no more than an hour to answer several questionnaires on attachment, life events and emotional distress. They will have the opportunity to do this over more than one session if they prefer.

How to refer into the study

Identify a suitable person based on inclusion and exclusion criteria

↓

From the information pack give the individual the participant information sheet and ask if they would be willing to take part and be contacted by Lucy Clark.

↓

Fill in the referral form and send to Lucy Clark at the address the referral form or send the information in an email to lucy.clark@nhs.net

Lucy Clark will then contact the individual and arrange a meeting. If they would like their key worker present this can be arranged. Their lead clinical will be made aware of their participation by letter and a copy of their consent form.

I will keep you informed of how the research is going!

Thank you

More information

If you are interested in the previous research that has been carried out in this field here are some papers that have informed this research:

Bendall, S., Jackson, H.J., Hulbert, C.A. and McGorry, P.D. (2008). Childhood trauma and psychotic disorders: A systematic, critical review of the evidence. Schizophrenia Bulletin, 34(3) ,568 579

Berry, K., Barrowclough, C., Wearden, A. (2007). A review of the role of adult attachment style in psychosis: Unexplored issues and questions for further research. Clinical Psychology Review, 27, 458 – 475.

Chadwick, P., Hughes, S., Russell, D., Russell, I. and Dagnan, D (2009). Mindfulness Groups for Distressing Voices and Paranoia: A Replication and Randomized Feasibility Trial. Behavioural and Cognitive Psychotherapy, 2009, 37, 403–412.

Gumley, A. and Schwannauer, M. (2006). Staying well after Psychosis: A cognitive Approach to Recovery and Relapse Prevention. Chichester: John Wiley & Sons.

National Institute of Clinical Excellence (2009). Schizophrenia (update): Core interventions in the treatment and management of schizophrenia in primary and secondary care (update) Guideline CG82. London:NICE.

Tait, L., Birchwood, M. and Trower, P. (2004). Adapting to the challenge of psychosis: Personal resilience and the use of sealing over (avoidant) coping strategies. British Journal of Psychiatry, 185, 410 – 415.

Any Questions?

If you have any more questions please get in touch with **Lucy Clark** at:

Psychology Department
Lynebank Hospital
Halbeath Road
Dunfermline
Fife

Tel: 01383 565402/ 565403

Email: lucy.clark@nhs.net

Thank you!

Appendix 3.7 Participant information sheet

Participant Information Sheet

Attachment, trauma and distress in psychosis

You are being invited to take part in a research study. Before you decide whether or not you want to take part we would like you to understand why the research is being done and what participating would involve for you. Please take the time to read the following information carefully We are investigating childhood experiences of adults with psychosis and how these affect the way they respond to trauma and psychotic experience.

What is the purpose of the study?
The study is to explore how life experiences and relationships may affect the way people respond to trauma and psychotic experience in adulthood.

Increasing the understanding of the factors which influence distress and how these interact for people with psychosis is relevant to learning what can be targeted in promoting recovery and alleviating emotional distress. The study is also part of an educational project.

Why have I been invited?
You are currently or have previously experienced distressing psychosis and therefore may be able to give us information which helps us better understand this.

Do I have to take part?
It is up to you to decide to join the study. Your key worker will describe the study and go through this information sheet, which you can then take away and think about. If you decide to take part in the study we will arrange for the study researcher to contact you and go through this information sheet. We will then ask you to sign a consent form. You are free to withdraw at any time, without giving a reason. If you decide not to take part this will not affect the standard of care you receive.

What will happen to me if I take part?
You will meet with the researcher for a 60minute assessment session to complete 4 questionnaires and two short semi-structured interviews (10 minutes each). This usually takes 60 minutes but can be done over up to three sessions if you would prefer. The interviews will be digitally audio-recorded and written up by the interviewer and then destroyed.

Expenses and payments?
There will be no payment offered for taking part in the study. The researcher will meet with you at your current base therefore no travel costs will be incurred.

What are the possible disadvantages or risks of taking part?
There is a potential risk that the questionnaires or short interview may cover some sensitive areas but in the event of you becoming distressed this will be discussed

with yourself and your key worker if you would like this to happen. If I am concerned about harm to yourself or anybody else I will have to talk to your key worker about this

What happens if I don't want to carry on with the study?
You can leave the study at any time without giving a reason; this will have no effect on any other care or treatment you are receiving.

What if there is a problem?
If you have concern about any aspect of this study, you should speak to the researcher who will do their best to answer your questions (lucy.clark@nhs.net).

Will my taking part in this study be kept confidential?
If you join the study, some parts of your medical records may be accessed by the primary investigator. All data collected in the study will be kept strictly confidential with a participant identification number replacing all identifiable information. The data collected will be stored securely in a locked cabinet. Only authorised persons, such as the researcher and principle supervisor, will have access to view the data. The raw data will be kept securely for five years, after which time it will be destroyed.

Any information discussed during sessions will be confidential, however if you disclose any information indicating risk of harm to yourself or others the researcher will have a duty of care to discuss this with your key workers.

What will happen to the result of the study?
The results of the study will be written up as part of an educational project and may be published in an academic journal. You will not be identified in any report or publication with all data remaining strictly confidential. Anonymous quotations from session discussions may be used in the write up.

Who has reviewed the Study?
All research in the NHS is looked at by 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 Committee.

If you have a complaint
If at any time you wish to make a complaint about any aspect of the study please contact NHS Fife Headquarters, Hayfield House, Hayfield Road, Kirkcaldy, Fife, KY2 5AH, and follow the standard NHS complaints procedure.

Further Information
If you require further information or have any questions or concerns you can contact Lucy Clark (Specialist Psychological Practitioner) on 01383 565402 / 565403.

If you require further advice or are unhappy about any aspect of the study please contact the principle supervisor, Amy McArthur (amymcarthur@nhs.net).

Thank you.

Appendix 3.8. Referral form

Attachment, life experiences and distress in psychosis

Referral criteria	
Inclusion criteria	
1. Diagnosis of psychosis in any form (e.g. schizophrenia, schizoaffective disorder etc.) Specific diagnosis……..	☐
Exclusion criteria	
1. Suicide risk	☐
2. Incapacity to consent to taking part	☐

Patient details:	
Name…….	
Date of birth……..	
CHI no. ……	
Patient Address ……..……..	
……	
……	
Telephone no. …….	
Patient has consented to be contacted	☐

Any other relevant information

Referrer details	**GP details**
Referrer name……	GP name……
Address……	Practice address……
Telephone number……	……
Email address……	**Psychiatrist details**
Signature……	Psychiatrist name……
	Psychiatrist address……
	……

Please return form to:

Lucy Clark
NHS Fife Department of Psychology
Lynebank Hospital
Halbeath Road
Dunfermline
Fife

Tel: 01383 565402/ 565403

OR

Email details to: Lucy.clark@nhs.net

Appendix 3.9. Letter from key worker

Participant letter. Version 2. February 2011

Research study looking at relationships and trauma in distressing psychosis

We are writing to you because you may fit the criteria to take part in a study that is being carried out investigating relationships, trauma and distressing psychosis.

The enclosed information sheet details information about the study. If you read this and want to take part could you contact either your key worker, or the researcher, Lucy Clark (Specialist Psychological Practitioner) (*email:* lucy.clark@nhs.net or *Tel:* 01383 565402/3) to arrange a meeting to discuss the information sheet further and if you agree to take part to sign a consent form.

Thank you.

Key worker

Appendix 3.10. Participant consent form

Participant consent form. Version 3. February 2011

NHS Fife

Consent Form

Attachment, trauma and distress in psychosis

	Please initial each box
I confirm that I have read and understand the information sheet dated February 2011(version 2) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
I understand that my participation is entirely voluntary and that I am free to withdraw at any time, without my medical care or legal rights being affected.	☐
I understand that relevant sections of my medical notes and data collected during the study may be looked at by the study researchers and individuals from the Sponsor, regulatory authorities or from the NHS organisation, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.	☐
I understand that all information about me will be kept strictly confidential and anonymised where possible. All information will be stored securely for up to 10 years and then destroyed in accordance with relevant guidelines.	☐
I understand that the interview part of the study will be audio recorded and once transcribed the recording will be destroyed.	☐
I am also aware that excerpts from the interview may be included in the thesis and/or publications to come from this research, with the understanding that the quotations will be anonymous.	☐
I understand that the results of the study will be shared amongst NHS Fife and may be published for research purposes. Any patient identifiable information will be removed.	☐
I understand that a copy of this consent form will be sent to my lead clinician and GP and will be included in my medical file.	☐
I understand that I can get a copy of the results when the study is completed and I would like to be contacted with these by post. Y/N	☐

Participant

Name (print)_____ Date _____ Signature_____

Researcher (person taking consent)

Name (print)_____ Date _____ Signature_____

When completed: 1 for participant, 1 for researcher, 1 for medical file

Appendix 3.11 NHS Research Ethics Committee approval

Lothian NHS Board

South East Scotland Research
Ethics Committee 03
Waverley Gate
2-4 Waterloo Place
Edinburgh
EH1 3EG
Telephone 0131 536 9000
Fax 0131 536 9088

www.nhslothian.scot.nhs.uk
Date
Our Ref
Enquiries to Joyce Clearie
Extension 35674
Direct Line 0131 465 5674
Email joyce.clearie@nhslothian.scot.nhs.uk

01 March 2011

Miss L V Clark
Specialist Psychological Practitioner
NHS Fife
Clinical Psychology Department,
Lynebank hospital, Halbeath Road,
Dunfermline, Fife
KY11 4UW

Dear Miss Clark

Study Title: **Trauma, attachment and psychosis: What are the relationships between trauma, attachment and distress in psychosis?**
REC reference number: **11/AL/0005**

Thank you for your letter of 16 January 2011, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information was considered by the chair on behalf of SESREC 3.

Confirmation of ethical opinion

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

Ethical review of research sites

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

Conditions of the favourable opinion

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

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

For NHS research sites only, management permission for research ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk.

Where the only involvement of the NHS organisation is as a Participant Identification Centre (PIC), management permission for research is not required but the R&D office should be notified of the study and agree to the organisation's involvement. Guidance on procedures for PICs is available in IRAS. Further advice should be sought from the R&D office where necessary.

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

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

Approved documents

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

Document	*Version*	*Date*
Protocol	1	
Letter of invitation to participant	2	25 February 2011
GP/Consultant Information Sheets	1	01 November 2010
Response to Request for Further Information		16 January 2011
Investigator CV	CI	17 January 2011
Investigator CV	Schwannauer	25 September 2008
Participant Consent Form	3	25 February 2011
Questionnaire: Southampton Midfulness Q	SMQ	
Questionnaire: BAI Anxiety	BAI	
Questionnaire: Calgary Depression scale		
Questionnaire: Impact of Event Scale		

References		01 January 2011
Participant Information Sheet	2	25 February 2011
REC application	1	18 January 2011
Questionnaire: Relationship	Rel	
Evidence of insurance or indemnity		13 July 2010
Covering Letter		16 January 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

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

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

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

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

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

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

11/AL/0005	**Please quote this number on all correspondence**

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

Yours sincerely

Dr Christine West
Chair

Email: joyce.clearie@nhslothian.scot.nhs.uk

Enclosures:

"After ethical review – guidance for researchers" *[SL-AR1 for CTIMPs, SL- AR2 for other studies]*

Copy to: *Miss Lucy V Clark*
[R&D office for NHS care organisation at lead site]

Lothian NHS Board

South East Scotland Research
Ethics Committee 03
Waverley Gate
2-4 Waterloo Place
Edinburgh
EH1 3EG
Telephone 0131 536 9000
Fax 0131 536 9088

www.nhslothian.scot.nhs.uk
Date
Our Ref
Enquiries to Joyce Clearie
Extension 35674
Direct Line 0131 465 5674
Email joyce.clearie@nhslothian.scot.nhs.uk

11 July 2011

Miss L V Clark
Specialist Psychological Practitioner
NHS Fife
Clinical Psychology Department,
Lynebank hospital, Halbeath Road,
Dunfermline, Fife
KY11 4UW

Dear Miss Clark

Study title:	**Trauma, attachment and psychosis: What are the relationships between trauma, attachment and distress in psychosis?**
REC reference:	**11/AL/0005**
Amendment number:	**1**
Amendment date:	**07 July 2011**

The above amendment was reviewed by the Sub-Committee in correspondence.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	Version	Date
Questionnaire: Trauma History Q		07 January 2011
Notice of Substantial Amendment (non-CTIMPs)		07 July 2011

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

R&D approval

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval of the research.

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.

11/AL/0005:	**Please quote this number on all correspondence**

Yours sincerely

Dr C West
Chair

E-mail: joyce.clearie@nhslothian.scot.nhs.uk

Enclosures: *List of names and professions of members who took part in the review DR C WEST and MR W TAYLOR*

Copy to: *Miss Lucy V Clark*

Appendix 3.12i. NHS Fife Research and Development approval

NHS Fife

Miss Lucy Clark
Specialist Psychological Practitioner
Clinical Psychology Dept
Lynebank Hospital
Halbeath Rd
DUNFERMLINE

Medical Director, Primary Care
Room 313
Hayfield House
Hayfield Road
KIRKCALDY
Fife KY2 5AH
Tel 01592 643355
www.show.scot.nhs.uk/fpct

Date 14 March 2011
Our Ref 11-019 11/AL/0005
Enquiries to Aileen Yell
Tel No 01383 565110
Email aileenyell@nhs.net

Dear Miss Clark

Project Title: Trauma, attachment and psychosis : what are the relationships between trauma, attachment and distress in psychosis?

Thank you for your application to carry out the above project. Your project documentation (detailed below) has been reviewed for resource and financial implications for NHS Fife and I am happy to inform you that NHS permission for the above research has been granted on the basis described in the application form, protocol and supporting documentation. The documents reviewed were:

Document	Version	Date
Research Protocol	1	January 2011
Investigator CV		11 March 2011
Response to REC letter		16 January 2011
REC provisional favourable opinion letter		18 February 2011
REC final favourable opinion letter		1 March 2011
Various documents and supporting information referred to in REC correspondence		
IRAS R&D Form	3.1	7 March 2011
IRAS SSI Form	3.1	11 March 2011

The terms of the approval state that you are the investigator authorised to undertake this study within NHS Fife. No Site Specific Assessment review is required in this case.

The sponsors for this study are the University of Edinburgh.

Details of our participation in studies will be included in annual returns we are expected to complete as part of our agreement with the Chief Scientist Office. Regular reports of the study require to be submitted. Your first report should be submitted to Dr A Wood, R&D Manager, R&D Resource Centre, Lynebank Hospital, Halbeath Rd, Dunfermline, KY11 4UW (Amanda.wood3@nhs.net) in 12 months time and subsequently at yearly intervals until the work is completed. A Lay Summary will also be required upon completion of the project.

In addition, approval is granted subject to the following conditions:-

- All research activity must comply with the standards detailed in the Research Governance Framework for Health & Community Care (http://www.cso.scot.nhs.uk/publications/resgov/resgov.htm), health & safety regulations, data protection principles, other appropriate statutory legislation and in accordance with Good Clinical Practice (GCP).

- Any amendments which may subsequently be made to the study should also be notified to Aileen Yell, Research Governance Officer (aileenyell@nhs.net) , as well as the appropriate regulatory authorities. Notification should also be given of any new research team members post approval and/or any changes to the status of the project.

- This organisation is required to monitor research to ensure compliance with the Research Governance Framework and other legal and regulatory requirements. This is achieved by random audit of research. You will be required to assist with and provide information in regard to monitoring and study outcomes (including providing recruitment figures to the R&D office as and when required).

- As custodian of the information collated during this research project you are responsible for ensuring the security of all personal information collected in line with NHS Scotland IT Security Policies, until the destruction of this data.

- Permission is only granted for the activities for which a favourable opinion has been given by the REC (and which have been authorised by the MHRA where appropriate).

- The research sponsor or the Chief Investigator or local Principal Investigator at a research site may take appropriate urgent safety measures in order to protect research participants against any immediate hazard to their health or safety. The R&D office (aileenyell@nhs.net) should be notified that such measures have been taken. The notification should also include the reasons why the measures were taken and the plan for further action. The R&D office should be notified within the same time frame of notifying the REC and any other regulatory bodies.

I would like to wish you every success with your study and look forward to receiving a summary of the findings for dissemination once the project is complete.

Yours sincerely

Stella Clark

DR STELLA CLARK
Medical Director, Primary Care
NHS Fife

Cc : Aileen Yell, Research Governance Officer, NHS Fife, Lynebank Hospital, Dunfermline

Appendix 3.12ii, NHS Forth Valley Research and Development approval

NHS
Forth Valley

Date: 2 August 2011
Your Ref:
Our Ref:
Direct Line: 01324 677564
Email: allyson.bailey@nhs.net
R&D ref: FV 603

Miss L V Clark
Specialist Psychological Practitioner
NHS Fife
Clinical Psychology Department,
Lynebank Hospital, Halbeath Road,
Dunfermline, Fife
KY11 4UW

Dear Miss Clark

Study title: Trauma, attachment and psychosis: What are the relationships between trauma, attachment and distress in psychosis?
REC reference: 11/AL/0005

Following the favourable opinion from the South East Scotland Research Ethics Committee 03 on 1 March 2011, I am pleased to confirm that I formally gave Management Approval to the study above on 2 August 2011.

This approval is granted subject to your compliance with the following:

1. Any amendments to the protocol or research team must have Ethics Committee and R&D approval (as well as approval from any other relevant regulatory organisation) before they can be implemented. Please ensure that the R&D Office and (where appropriate) NRS are informed of any amendments as soon as you become aware of them.

2. You and any local Principal Investigator are responsible for ensuring that all members of the research team have the appropriate experience and training, including GCP training if required.

3. All those involved in the project will be required to work within accepted guidelines of health and safety and data protection principles, any other relevant statutory legislation, the Research Governance Framework for Health and Community Care and IHC-GCP guidelines. A copy of the Framework can be accessed via the Chief Scientist Office website at: http://www.cso.scot.nhs.uk/Publications/ResGov/Framework/RGFEdTwo.pdf and ICH-GCP guidelines may be found at http://www.ich.org/LOB/media/MEDIA482.pdf

4. As custodian of the information collected during this project you are responsible for ensuring the security of all personal information collected in line with NHS Scotland IT security policies, until the destruction of this data.

5. You or the local Principal Investigator will be required to provide the following reports and information during the course of your study:

- A progress report **annually**

- Recruitment numbers on a **monthly** basis (if your study should be added to the NIHR research Portfolio you will receive a separate letter from the R&D Office detailing the steps to be taken)
- Report on SAEs and SUSARs if your study is a Clinical Trial of an Investigational Medicinal Product
- Any information required for the purpose of internal or external audit and monitoring
- Copies of any external monitoring reports
- Notification of the end of recruitment and the end of the study
- A copy of the final report, when available.
- Copies of or full citations for any publications or abstracts

The appropriate forms will be provided to you by the Research and Development office when they are needed. Other information may be required from time to time.

Yours sincerely

pp **DR. IAIN WALLACE**
Medical Director

CC: NRS Permissions Coordinating Centre (NRS Permissions CC)
Research & Development Office
Foresterhill House Annexe
Foresterhill
ABERDEEN
AB25 2ZB

Appendix 3.12iii, NHS Tayside Research and Development approval

NHS
Tayside

EC/LH

18 August 2011

Miss Lucy V Clark
NHS Fife
Clinical Psychology Department
Lynebank Hospital, Halbeath Road
Dunfermline, Fife
KY11 4UW

Dear Miss Clark,

LETTER OF ACCESS FOR RESEARCH

NRS Ref: NRS11/MH45

Tayside R&D Project ID: 2011PZ06

Title: Trauma, attachment and psychosis: What are the relationships between trauma, attachment and distress in psychosis?

Main REC Ref: 11/AL/0005

This letter confirms your right of access to conduct research through **NHS Tayside** *for the purpose and on the terms and conditions set out below. This right of access commences on* **18th August 2011** *and ends on* **18th February 2012** *unless terminated earlier in accordance with the clauses below.*

You have a right of access to conduct such research as confirmed in writing in the letter of permission for research from this NHS organisation. Please note that you cannot start the research until the Chief Investigator and/or Principal Investigator for the research project has received a letter from us giving permission to conduct the project.

The information supplied about your role in the above study at **NHS Tayside** has been reviewed and you do not require an honorary research contract with this NHS organisation. We are satisfied that such pre-engagement checks as we consider necessary have been carried out.

You are considered to be a legal visitor to **NHS Tayside** premises. You are not entitled to any form of payment or access to other benefits provided by this NHS organisation to employees and this letter does not give rise to any other relationship between you and this NHS organisation, in particular that of an employee.

While undertaking research through **NHS Tayside**, you will remain accountable to your employer **NHS Fife** but you are required to follow the reasonable instructions of **Mrs Caroline Guthrie** as well as those given on her/his behalf in relation to the terms of this right of access.

Where any third party claim is made, whether or not legal proceedings are issued, arising out of or in connection with your right of access, you are required to co-operate fully with any investigation by this NHS organisation in connection with any such claim and to give all such assistance as may reasonably be required regarding the conduct of any legal proceedings.

You must act in accordance with **NHS Tayside** policies and procedures, which are available to you upon request, and the Research Governance Framework.

You are required to co-operate with **NHS Tayside** in discharging its duties under the Health and Safety at Work etc Act 1974 and other health and safety legislation and to take reasonable care for the health and safety of yourself and others while on **NHS Tayside** premises. You must observe the same standards of care and propriety in dealing with patients, staff, visitors, equipment and premises as is expected of any other contract holder and you must act appropriately, responsibly and professionally at all times.

You are required to ensure that all information regarding patients or staff remains secure and *strictly confidential* at all times. You must ensure that you understand and comply with the requirements of the NHS Confidentiality Code of Practice (http://www.dh.gov.uk/assetRoot/04/06/92/54/04069254.pdf) and the Data Protection Act 1998. Furthermore you should be aware that under the Act, unauthorised disclosure of information is an offence and such disclosures may lead to prosecution.

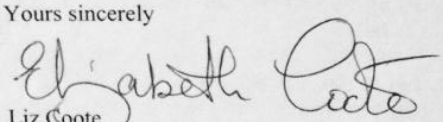
You should ensure that, where you are issued with an identity or security card, a bleep number, email or library account, keys or protective clothing, these are returned upon termination of this arrangement. Please also ensure that while on the premises you wear your ID badge at all times, or are able to prove your identity if challenged. Please note that this NHS organisation accepts no responsibility for damage to or loss of personal property.

We may terminate your right to attend at any time either by giving seven days' written notice to you or immediately without any notice if you are in breach of any of the terms or conditions described in this letter or if you commit any act that we reasonably consider to amount to serious misconduct or to be disruptive and/or prejudicial to the interests and/or business of this NHS organisation or if you are convicted of any criminal offence. Your substantive employer is responsible for your conduct during this research project and may in the circumstances described above instigate disciplinary action against you.

NHS Tayside *will not indemnify you against any liability incurred as a result of any breach of confidentiality or breach of the Data Protection Act 1998. Any breach of the Data Protection Act 1998 may result in legal action against you and/or your substantive employer.*

If your current role or involvement in research changes you must inform your employer through their normal procedures. You must also inform your nominated manager in this NHS organisation.

Yours sincerely



Liz Coote
R&D Manager
Tayside Academic Health Sciences Centre
Ninewells Hospital & Medical School
TAHSC Research & Development Office
Residency Block, Level 3
George Pirie Way
Dundee DD1 9SY

Tel: 01382 496536 Fax: 013812 496207

c.c. Mrs C Guthrie
Mrs Vanessa Edgar

Appendix 4.1 Author submission guidelines for Attachment and Human Development

Instructions for authors

Papers will be considered providing that they have not previously been published or submitted simultaneously elsewhere for publication.

EMPIRICAL REPORTS

1) The paper should conform to APA standards, with a legible abstract (100-150 words), followed by sections that include an introduction, method, results, and discussion.

THEORY/REVIEW PAPERS

2) The paper should make an original, testable and/or useful extension/revision to theory and previous literature concerning attachment processes and human development.

CLINICAL CASE-STUDIES

3) Authors should provide an account of previous clinical theory in an organized and up-to-date manner distinct from the clinical case material. Further, the clinical case material should occupy no more than a third of the paper. The first third should include only relevant background theory, while the final third should aim to discuss the descriptive presentation of the clinical case material against the background of existing theories and/or modifications needed to accommodate the clinical material.

ALL SUBMISSIONS should include an abstract, and ordinarily be about 6,000 words in length, not exceeding 7500 words in total, though occasionally longer papers are considered. In order to facilitate blind peer review, authors are encouraged to prepare a cover sheet that includes identifying details not included in the manuscript which will be sent out for review, less the cover sheet.

E-mail submissions to the Editor are preferred; please send an electronic copy of your manuscript to steeleh@newschool.edu .

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Description of the Journal's article style , Quick guide
Description of the Journal's reference style , Quick guide
Any consistent spelling style is acceptable. Use double quotation marks with single within if needed. If you have any questions about references or formatting your article, please contact authorqueries@tandf.co.uk (please mention the journal title in your email).

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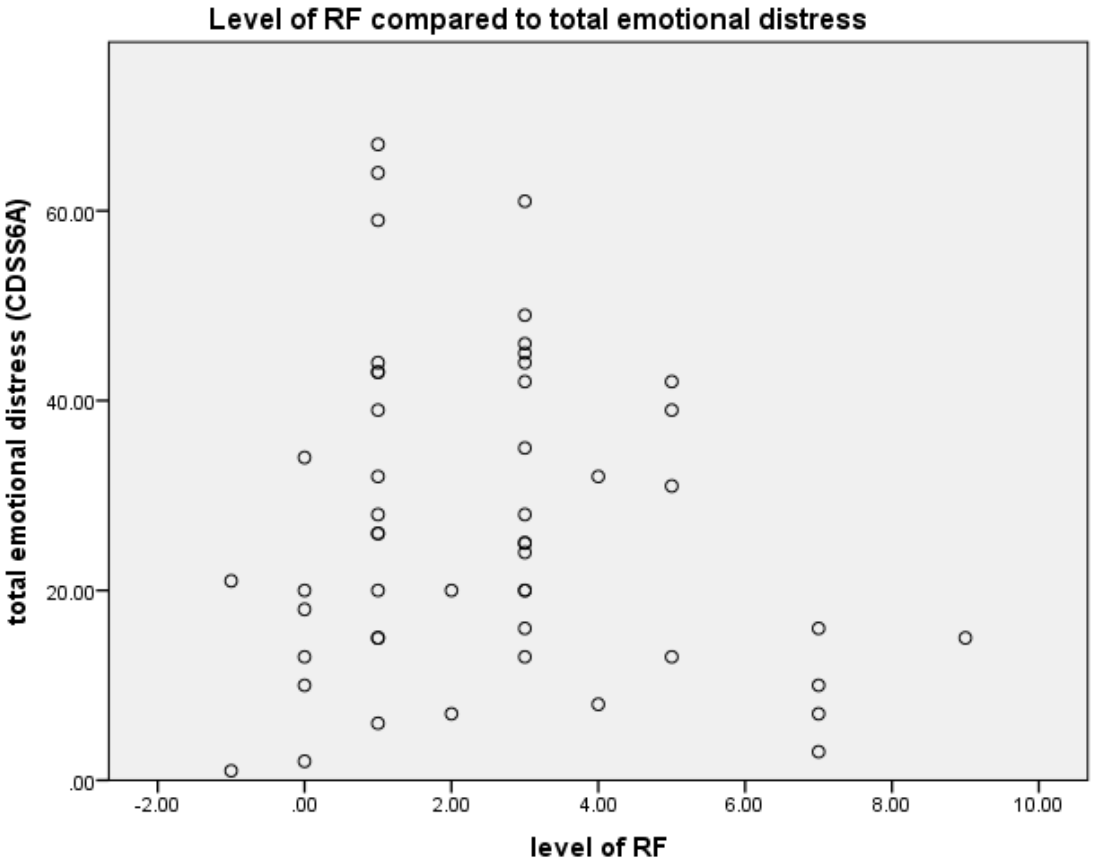
Appendix 4.2 RF and emotional distress scatter plot



Appendix 5.1 THQ breakdown of trauma types

Event	Description	Percentage Child breakdown	Percentage Adult breakdown	Percentage Regardless of age
1.	Mugging	7.8 (n= 4)	27.5 (n=14)	31.4 (n=16)
2.	Robbery	7.8 (n= 4)	39.2 (n=20)	41.2 (n=21)
3.	Breaking in (Gone)	9.8(n=5)	23.5 (n=12)	31.4 (n=16)
4.	Breaking in (Home)	2 (n=1)	13.7 (n=7)	13.7 (n=7)
5.	Serious Accident	21.6 (n=11)	31.4 (n=16)	47.1 (n=24)
6.	Natural Disaster	3.9 (n=2)	7.8 (n=4)	11.8 (n=6)
7.	Human Disaster	2.0 (n=1)	13.7 (n=7)	15.7 (n=8)
8.	Chemicals/Toxins	15.7 (n=8)	17.6 (n=7)	25.5 (n=13)
9.	Serious Injury	17.6 (n=9)	13.7 (n=7)	29.4 (n=15)
10.	Feared Killed/Injured	15.7 (n=8)	49.0 (n=25)	56.9 (n=29)
11.	Seen Killed/Injured	9.8 (n=5)	29.4 (n=15)	37.3 (n=19)
12.	Dead Bodies	11.8 (n=6)	27.5 (n=14)	35.3 (n=18)
13.	Friend/Family Killed	-	11.8 (n=6)	11.8 (n=6)
14.	Immediate Family Die	5.9 (n=3)	15.7 (n=8)	21.6 (n=11)
15.	Serious Injury (Self)	11.8 (n=6)	33.3 (n=17)	39.2 (n=20)
16.	Injury/Illness (S.O.)	15.7 (n=8)	58.8 (n=30)	66.7 (n=34)
17.	Combat	-	-	-
18.	Intercourse/Sex	23.5 (n =12)	15.7 (n=8)	37.3 (n=19)
19.	Touched	29.4 (n=15)	5.9 (n=3)	33.3 (n=17)
20.	Other Sexual	9.8 (n=5)	25.5 (n=13)	33.3 (n=17)
21.	Attacked/Weapon	11.8 (n=6)	27.5 (n=14)	35.3 (n=18)
22.	Attacked/No Weapon	27.5 (n=14)	27.5 (n=14)	51.0 (n=26)
23.	Beaten, etc.	52.9 (n=27)	5.9 (n=3)	56.9 (n=29)
24.	Other (specify)	13.7 (n=7)	35.3 (n=18)	43.1 (n=22)

Appendix 5.2 Transformed Z-scores for RF and THQ

Variable	Skewness		Kurtosis		Z scores	
	Value	SE	Value	SE	Skewness	Kurtosis
logRF (n=51)	-.428	.333	.286	.656	-1.285	.435
THQ (n= 51)						
logTHQ adult interpersonal trauma	.401	.333	-.959	.656	1.204	-1.462