Attachment and psychosis
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Adult attachment and psychotic phenomenology in clinical and non-clinical samples: A systematic review

Nikie Korver-Nieberg, Katherine Berry, Carin J Meijer, Lieuwe de Haan

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Abstract

Purpose
It has been argued that attachment theory could enhance our knowledge and understanding of psychotic phenomenology. We systematically reviewed and critically appraised research investigating attachment and psychotic phenomenology in clinical and non-clinical samples.

Methods
We searched databases Pub Med, PsycINFO, Medline and Web of Science using the keywords: Attachment, Adult Attachment, Psychosis, Schizotypy and Schizophrenia and identified twenty-nine studies assessing adult attachment in combination with psychotic phenomenology.

Results
The findings indicated that both insecure anxious and insecure avoidant attachment are associated with psychotic phenomenology. Insecurely attached individuals are more vulnerable to developing maladaptive coping strategies in recovering from psychosis. The importance of attachment experiences for processing social information, mentalization skills and developing social relationships, including therapeutic relationships, in samples with psychosis is also highlighted.

Conclusions
Attachment style is a clinically relevant construct in relation to development, course and treatment of psychosis.

Practitioner Points
- Understanding the role of attachment in symptoms may help to gain insight into the development or persistence of symptoms.
- Associations between attachment and recovery style suggest that it may be helpful to improve attachment security in a context of therapeutic relationships or other social relationships before encouraging people to explore their experiences of psychosis.
- Associations between insecure attachment and impaired mentalization skills may help in understanding interpersonal difficulties and this knowledge can be used to improve recovery.
1. Introduction

Attachment theory is a life span theory, which proposes that early relationships with significant others have a significant impact on later interpersonal relationships (Bowlby, 1973). The theory is based on the assumption that early experiences lead to the formation of internal working models consisting of mental representations of the self and others and relationships with others. Individuals interpret experiences in light of their working models which help guide behaviour (Berry, Barrowclough, & Wearden, 2007; Collins & Allard, 2004). In support of this theory, there is evidence that childhood experiences influence attachments to others in adult life, and that attachment style predicts social functioning, interpersonal difficulties and psychopathology (Bartholomew & Horowitz, 1991; Platts, Tyson, & Mason, 2002; Berry, Wearden, Barrowclough, & Liversidge, 2006).

Given the importance of attachment to interpersonal functioning and psychopathology, a number of theoretical papers have argued that attachment theory can help develop existing models and conceptualisations of psychosis (Berry et al., 2007; Gumley & Schwannauer, 2006; Mikulincer & Shaver, 2007; Read & Gumley, 2008). As attachment theory conceptualizes the ways in which social cognition, interpersonal experiences and regulation of affect are involved in development of interpersonal functioning and psychological distress, Berry et al. (2007) proposed that insights could improve our understanding of the nature and development of social cognition and the role and predictors of interpersonal difficulties in relation to the development and course of psychosis. The theoretical literature emerged more quickly than the empirical literature as only a handful of studies investigating adult attachment and psychosis had been carried out at the time of these reviews and discussion papers. Berry et al (2007) systematically reviewed empirical studies on attachment and psychosis up until 2004. This review paper was key in highlighting the potential relevance of attachment theory to the study of psychosis, the authors acknowledge however that limited research was done at the time and more was needed to develop a greater evidence base. Read and Gumley (2008) also provided a review with similar findings and conclusions. Since its publication there has been a growth of empirical studies investigating attachment in patients with psychosis and therefore the first aim of the current paper is to extend the review of Berry and colleagues by including recent attachment and psychosis studies from 2004 on to 2011. In doing so, we will evaluate the extent to which attachment theory can enhance our understanding of the development and maintenance of psychosis, identify further areas of research and any clinical implications of the findings.

There is also a related body of research investigating attachment and its association with psychotic phenomena in non-clinical samples. To our knowledge an overview of research with non-clinical samples does not exist and therefore the second aim of the current paper is to systematically review the studies of non-clinical samples on attachment and psychotic like experiences. These are useful in psychosis research, since psychotic phenomena are believed to lie on a continuum with normal experiences (Berry et al., 2006). Moreover, the confounding effects of treatment of psychosis or consequences of the diagnosis are absent in non-clinical samples (Tiliopoulos & Goodall, 2009). The majority of studies in non-clinical samples investigate associations between attachment and schizotypal personality traits.
Schizotypy is a construct that overlaps in symptom dimensions with schizophrenia and can be divided into positive and negative symptoms. Individuals with schizotypy do not necessarily experience dysfunction or psychopathology (Claridge & Davis, 2003).

2. Measures of attachment

There are two approaches in conceptualising and assessing adult attachment, the narrative and self-report tradition. The theoretical background on which these approaches are based is similar in that early childhood experiences lead to the formation of working models which in turn influence later interpersonal functioning. The different assessment approaches stem from different ideas about the content and structure of the working models (Simpson, 1998).

Narrative tradition

Main and colleagues (1985) developed the Adult Attachment Interview (AAI), a semi structured interview instrument that measures the organization of representations of earlier attachment figures in adults by classifying individuals on the ‘coherence’ of their narrated description of their relationships with attachment figures. Classifications are secure-autonomous, insecure-dismissing, insecure-preoccupied and unresolved (see Table 1 for more detail on the AAI). Kobak’s (1993) Q-sort method is a widely used method for classifying the results of the AAI into two independent dimensions (secure versus insecure and deactivating versus hyperactivating strategies) or classify them into secure, dismissing and preoccupied attachment (Hesse, 1999).

Table 1. Overview of adult attachment measures.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Type</th>
<th>Scales/dimensions</th>
<th>Prototypes/categories</th>
<th>Developers</th>
<th>Number of studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Attachment Interview (AAI)</td>
<td>Narrative</td>
<td>- secure vs insecure - deactivating (avoidance) vs hyperactivating (anxiety)</td>
<td>- Secure-autonomous* - Insecure-Dissing* - Insecure-preoccupied* - Unresolved*</td>
<td>Main et al. 1985 (Kobak, 1993)</td>
<td>7</td>
</tr>
<tr>
<td>Psychosis Attachment Measure (PAM)</td>
<td>Multi item Self report</td>
<td>- Anxiety*** - Avoidance***</td>
<td></td>
<td>Berry et al., 2006</td>
<td>9</td>
</tr>
<tr>
<td>Trichotomous Measure</td>
<td>Single item self report</td>
<td></td>
<td>- Secure - Avoidant - Anxious</td>
<td>Hazan &amp; Shaver, 1987</td>
<td>3</td>
</tr>
</tbody>
</table>
Hazan and Shaver (1987) were the first to conceptualise romantic love as an attachment process. They used Ainsworth’s three categories (secure, insecure avoidant & insecure ambivalent), as assessed by the strange situation test for infants (Ainsworth, Blehar, Waters, & Wall, 1978), for development of the Trichotomous self-report measure for adults. The instrument was based on three single item patterns of attachment behaviour: secure, avoidant and anxious. Many adult self-report measures to assess attachment styles have been developed since (see Mikulincer and Shaver (2007) for an overview). In these self–report measures, four prototypic attachment

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**Table 1. Overview of adult attachment measures. (Continued)**

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</tr>
</thead>
<tbody>
<tr>
<td>Attachment Style Questionnaire (ASQ)</td>
<td>Multi item self report</td>
<td>- Discomfort with closeness (avoidance)</td>
<td></td>
<td>Feeney et al., 1994</td>
<td>2</td>
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<tr>
<td></td>
<td></td>
<td>- Relationships as secondary (avoidance)</td>
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<td></td>
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<td>- Need for approval (anxiety)</td>
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<td></td>
<td></td>
<td>- Preoccupation with relationships (anxiety)</td>
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<td></td>
<td></td>
<td>- Confidence (anxiety)</td>
<td></td>
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<tr>
<td>Adult Attachment Scale (AAS)</td>
<td>Multi item self report</td>
<td>- Discomfort depending on others (avoidance)</td>
<td></td>
<td>Collins &amp; Read, 1990</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Discomfort with closeness (avoidance)</td>
<td></td>
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<td></td>
<td></td>
<td>- Anxiety about being unloved (anxiety)</td>
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<tr>
<td>Relationship Style Questionnaire (RSQ)</td>
<td>Multi item self report</td>
<td>- Anxiety***</td>
<td></td>
<td>Griffin &amp; Bartholomew, 1994</td>
<td>2</td>
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<tr>
<td></td>
<td></td>
<td>- Avoidance ***</td>
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<td></td>
<td></td>
<td>- Secure**</td>
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<td>- Dismissive**</td>
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<td>- Fearful**</td>
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<tr>
<td></td>
<td></td>
<td>- Preoccupied**</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Experiences in Close Relationships Scale (ECR)</td>
<td>Multi item self report</td>
<td>- Anxiety***</td>
<td></td>
<td>Brennan et al., 1998</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Avoidance***</td>
<td></td>
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</tr>
</tbody>
</table>

* A **secure-autonomous** state of mind is characterized by clear coherent narratives of attachment relationships in which descriptions of both positive and negative experiences with attachment figures are integrated and reflected on. Individuals with an **insecure-dismissing** state of mind tend to idolise not having close attachments or minimize the negative consequences of avoiding attachment relationships and experiences. An **insecure-preoccupied** state of mind is characterized by individuals who struggle to coherently describe attachment experiences and relationships, as they focus on the angry or fearful aspects of the relationship. The ‘**unresolved**’ category refers to a disorganized state of mind that does not allow a coherent narrative to be described, specifically when discussing loss or abusive experiences.

** See Figure 1 for Bartholomew’s (1990) model that incorporates these prototypes and dimensions.

*** Attachment anxiety is defined as having a negative view of self, fear that others will reject and abandon them in times of need, combined with an intense need to receive approval from others. Attachment avoidance is defined as having a negative view about others and feelings of discomfort when close to others, together with social withdrawal and an intense need for self reliance or a fear of depending on others.

**Self-report tradition**

Hazan and Shaver (1987) were the first to conceptualise romantic love as an attachment process. They used Ainsworth’s three categories (secure, insecure avoidant & insecure ambivalent), as assessed by the strange situation test for infants (Ainsworth, Blehar, Waters, & Wall, 1978), for development of the Trichotomous self-report measure for adults. The instrument was based on three single item patterns of attachment behaviour: secure, avoidant and anxious. Many adult self-report measures to assess attachment styles have been developed since (see Mikulincer and Shaver (2007) for an overview). In these self–report measures, four prototypic attachment
styles (secure, preoccupied, fearful and dismissing) with two underlying dimensions are defined: anxiety versus avoidance (in affective behavioural terms) or a model of self-versus others (in cognitive terms). See Figure 1 for Bartholomew’s (1990) model that incorporates these prototypes and dimensions. The dimensional approach to conceptualizing attachment has psychometric advantages, whereas attachment prototypes add interpretational power to the dimensions as they capture characteristics associated with combinations of dimensions (Griffin & Bartholomew, 1994). Brennan, Clark and Shaver (1998) performed a factor analysis with all existing self-report measures of adult attachment and their results suggested that that the use of multi-item scales with underlying dimensions or subscales ‘anxiety’ and ‘avoidance’ are valid for investigating adult attachment with self-report questionnaires. Stein et al. (2002) analysed the underlying dimensions of five self-report measures and they propose two underlying constructs ‘Security’ and ‘Strategies for coping with insecurity in relationships’. They suggest that as feelings of insecurity increase, avoidant and/or anxious attachment strategies increase as a way of coping with perceived lack of security.

Kurdek (2002) and Stein et al. (2002) found that, in line with Brennan et al. (1998), the two dimension model is valid and there are psychometric problems in establishing validity of self-report prototypes and scales beyond the two dimension model. This is important to consider when interpreting results of studies with self-report measures which assess more than two attachment dimensions (see Table 1 for an overview of the scales assessed of all included self-report measures). However, Brennan et al. (1998) stated that most factors found in attachment measures can be organized along the anxiety and avoidance dimensions. Scales such as dismissive, fearful, discomfort with closeness and relationships as secondary are related to the avoidance dimension (Smith, Msetfi, & Golding, 2010), whereas preoccupied, need for approval and anxious ambivalent are related to the anxiety dimension.

![Model of Self (Anxiety)](image)

**Figure 1. Bartholomew’s model (1990), adapted from Bartholomew & Horowitz, (1991)**
Narratives and self-reports compared

Different techniques to conceptualize and operationalize adult attachment raise the question whether these methods assess the same construct. Both interview and self-report approaches stem from the same theory but differ, not only in terms of their assessment method but also in whether they focus on specific relationships with parents, partners or peers or on general relationships (Mikulincer and Shaver 2007). Crowell et al. (1999) compared self-report and interview measures directly and found no significant associations. Mikulincer and Shaver (2007) review several studies addressing convergence, implicit correlates and discriminant validity of both interview and self-report measures. The authors conclude that both assessment techniques are valuable as both stem from the attachment theory and are often related to each other. However, when interpreting the results of studies with different attachment measures, it is important to consider that different measures may link to different constructs.

3. Methods

To find empirical studies specifically targeted at adult attachment in combination with psychosis, we searched the databases Pub Med, PsycINFO and Medline in the year 2011 using the following keywords: (‘attachment’, ‘adult attachment’, ‘attachment style’, ‘attachment theory’) combined with psychosis-related key words (‘psychosis’, ‘psychotic’, psychotic-like symptoms ’psychotic phenomena’, ‘paranoia’, ‘hallucinations’, delusions’, ‘schizophrenia’, ‘schizotypy’). Subsequently, we searched reference lists of all identified articles for additional studies. Following the flow of information through the different phases of a systematic review, as suggested by the PRISMA statement (Moher, Liberati, Tetzlaff, Altman & the PRISMA group, 2009), duplicate records were removed after the initial search and the following inclusion and exclusion criteria were applied:

Inclusion criteria for the clinical sample studies were: a) the articles contained assessment(s) of adult attachment; b) the studies consisted of patients with a diagnosis of a schizophrenia spectrum disorder or other psychotic disorders; and c) English language. Studies were included post 2004. For the completeness of the overview, we integrated the already reviewed articles pre 2004, all of which met inclusion criteria of the current review.

Inclusion criteria for the non-clinical sample studies were: a) the articles contained assessment(s) of adult attachment; b) the studies included a measurement of (sub) clinical psychotic or schizotypal symptoms; and c) English language. No cut-off date was used for the search of non-clinical samples.

Exclusion criteria: We excluded the reported findings for the parental bonding results from Berry et al. (2007) as this is an attachment-related concept assessing recollection of parenting and not attachment. Papers with a specific focus on other attachment-related concepts such as theory of mind, social cognition, schemas and expressed emotion were excluded from this overview in order to focus on adult attachment, unless these concepts were studied next to or in combination with adult attachment.
As a final step in the systematic process the search was performed and the papers were rated independently by the first two authors before inclusion in the final sample.

4. Overview of studies

The search of the databases, reference lists and other sources initially identified 561 records. After removal of duplicates and exclusion based on our above mentioned criteria, the search resulted in twenty-one studies, in addition to the eight studies already reviewed by Berry et al. 2007. The eight studies published before 2004 (as reviewed by Berry et al. (2007)), and the additional thirteen articles investigating attachment in psychotic samples are included in Table 2. Two of the clinical studies included a first episode psychosis sample (Couture, Lecomte and Leclerc, 2007; MacBeth, Gumley, Schwannauer, & Fisher, 2011). Our search yielded eight articles concerning non-clinical samples which are provided in Table 3.

The total number of patients with a psychotic disorder included in the above described studies is 1362 of which 130 with a first episode of psychosis. A total number of 1951 non-clinical participants were included. We refer to the tables for number of participants and mean age per study.

We based our ‘grouping topics’ on key themes discussed in the papers included in the current review. We identified the following key themes concerning attachment and psychosis: (1) psychopathology (1.1) positive symptomatology (1.2) negative symptomatology and (1.3) course of illness; (2) recovery style; (3) attributional style (4) social information processing (5) mentalization; (6) interpersonal functioning (7) social networks; (8) quality of life; and (9) therapeutic relationships.

5. Key findings in attachment and psychosis studies

5.1 Psychopathology

Berry et al. (2007) summarised findings from studies by Dozier et al using the AAI and a large study by Mickelson, Kessler and Shaver (1997) using the Trichotomous self-report measure of attachment. These studies found evidence of higher levels of insecure dismissing-avoidant attachment in people with schizophrenia compared to controls (Dozier, 1990; Dozier, Stevenson, & Velligan, 1991; Dozier, Cue, & Barnett, 1994; Tyrrell, Dozier, Teague, & Fallot, 1999; Mickelson et al., 1997). A recent study using the AAI classification also found 75% of a first episode sample to be classified as insecure attached, with the majority (62%) classified as insecure-dismissing attachment (MacBeth et al., 2011). No differences between the attachment groups and positive and negative psychotic symptomatology were found, but the authors acknowledge that this could be due to the small sample size in the secure and preoccupied groups. The authors also suggest that this first episode sample was most likely stable at the time of assessment. It is therefore possible that there were relatively low levels of psychotic positive symptoms, which could explain the lack of association. A further study by Couture et al. (2007) compared attachment, assessed with the ‘ASQ’ self-report measure, and social functioning in patients and healthy controls.
Table 2. Overview of studies investigating attachment in patients with a diagnosis of psychosis. (Continued)

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Method of assessing attachment</th>
<th>Key results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dozier (1990)</td>
<td>42 patients with serious psychopathological disorders. Using DSM-III-R criteria 12 were diagnosed with schizophrenia, 25 with bipolar disorder, 3 with major depression, and 2 with atypical psychosis. Mean age 35.</td>
<td>AAI Q-sort method with ratings on security/anxiety and avoidance/preoccupation dimensions.</td>
<td>Greater security was associated with schizophrenia rather than affective disorders. Greater security was associated with more compliance with treatment. Higher levels of avoidance were associated with greater rejection of treatment providers, less self-disclosure, and poorer use of treatment.</td>
</tr>
<tr>
<td>Dozier et al (1991)</td>
<td>40 patients with serious psychopathological disorders. Using DSM-III-R criteria 21 were diagnosed with schizophrenia, 11 with bipolar disorder, and 8 with depression. Mean age 34. 40 family members.</td>
<td>AAI Q-sort method with ratings on security/anxiety and repressing/preoccupation dimensions.</td>
<td>Patients with more extreme repressing or preoccupied attachment strategies were more likely to have relatives with higher EOI.</td>
</tr>
<tr>
<td>Dozier et al (1994)</td>
<td>27 patients with serious psychopathological disorders. Using DSM-III-R criteria 8 were diagnosed with paranoid schizophrenia, 8 with undifferentiated schizophrenia, 9 with bipolar disorder, 1 with panic disorder, and 1 with conversion reaction. Mean age 34 (range 23-47). 18 case managers.</td>
<td>AAI Q-sort method with ratings on security/insecurity and dismissing/preoccupation dimensions.</td>
<td>Compared with secure case managers, insecure case managers attended more to dependency needs and intervened to a greater depth with preoccupied than they did with dismissing patients.</td>
</tr>
<tr>
<td>Dozier &amp; Lee (1995)</td>
<td>76 patients with serious psychopathological disorders. Using DSM-III-R criteria 24 were diagnosed with paranoid schizophrenia, 23 with undifferentiated schizophrenia, 27 with bipolar disorder, 1 with panic disorder, and 1 with conversion disorder.</td>
<td>AAI Q-sort method with ratings on security/insecurity and deactivating/hyperactivating dimensions.</td>
<td>Patients with hyperactivating strategies reported more psychiatric symptoms than those with deactivating strategies, but interviewers conducting the study rated individuals with deactivating strategies as more symptomatic.</td>
</tr>
<tr>
<td>Mickelson et al (1997)</td>
<td>8,098 participants in a National Co-morbidity Survey, 1.26% of whom had a DSM-III-R diagnosis of schizophrenia.</td>
<td>Trichotomous Measure</td>
<td>Schizophrenia was a significant predictor of insecure attachment style.</td>
</tr>
<tr>
<td>Tyrrell et al (1999)</td>
<td>54 patients with serious psychiatric disorders. Using DSM-IV criteria 31 were diagnosed with schizophrenia, 9 with schizoaffective disorder, 8 with bipolar disorder, and 6 with major depression. Mean age 41 (range 25-62). 21 clinical case managers.</td>
<td>AAI Q-sort method with ratings on deactivating/hyperactivating dimensions.</td>
<td>Patients who were more deactivating with respect to attachment had better alliances and functioned better with less deactivating case managers, whereas clients who were less deactivating worked better with more deactivating case managers.</td>
</tr>
</tbody>
</table>
### Table 2. Overview of studies investigating attachment in patients with a diagnosis of psychosis. (Continued)

<table>
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<tr>
<th>Study</th>
<th>Participants</th>
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<tbody>
<tr>
<td>Dozier et al. (2001)</td>
<td>34 patients with serious psychopathological disorders. Using DSM-IV criteria, 10 were diagnosed with schizophrenia and 7 with bipolar mood disorders. Mean age 34 (range 21-46). 17 case managers and 17 significant others, including family members and romantic partners.</td>
<td>AAI Q-sort method with ratings on security/insecurity and deactivation/hyper activating dimensions.</td>
<td>Patients who relied more on dismissing strategies spent less time on task when interacting with case managers than clients who relied on preoccupied strategies and reported more confusion following these interactions.</td>
</tr>
<tr>
<td>Tait et al. (2004)</td>
<td>50 patients during an acute episode of psychosis. Mean age 33.8 (12).</td>
<td>Adult Attachment Scale, AAS</td>
<td>Found insecure attachment was associated with recovery style and poorer engagement with services.</td>
</tr>
<tr>
<td>Caron et al. (2005)</td>
<td>143 patients with a diagnosis of schizophrenia or schizoaffective disorder. Mean age 41 (range 21-64)</td>
<td>Attachment is assessed as one of the components of the SPS Social Provisions Scale, SPS</td>
<td>Attachment measured as a social support component was one of the 2 best predictors of Quality of Life in schizophrenia (β=.36).</td>
</tr>
<tr>
<td>Couture et al. (2007)</td>
<td>96 patients with a first episode psychosis. Mean age 23.7 (4.7) 353+66 healthy controls</td>
<td>Attachment Style Questionnaire, ASQ</td>
<td>Avoidance, confidence and discomfort with closeness were linked to social functioning domains (particularly strong for the domain Quality of Life) (β=.38).</td>
</tr>
<tr>
<td>Ponizovski et al. (2007)</td>
<td>13 patients with schizophrenia, paranoid type, 7 with undifferentiated type, 5 with disorganized type and 5 with residual type. Mean age 38.4 (10.2). 30 healthy volunteers.</td>
<td>Trichotomous Measure</td>
<td>26.6% of the patients reported an anxious/ambivalent attachment style. This style correlated with positive syndrome of schizophrenia. 56.7 % of the patients reported an avoidant attachment style. This was associated with severity of both positive and negative symptoms. A positive correlation was found between attachment insecurity and course of the illness: Patients had earlier onset and longer time spent in psychiatric hospitals.</td>
</tr>
<tr>
<td>Berry et al. (2007)</td>
<td>58 patients with a diagnosis of schizophrenia, schizotypal or delusional disorder. Mean age 45.9 (13.5).</td>
<td>Psychosis Attachment Measure, PAM,</td>
<td>Attachment dimensions were positively related to attachment in key workers and parents</td>
</tr>
<tr>
<td>Donahoe et al. (2008)</td>
<td>73 patients with a diagnosis of Schizophrenia or Schizoaffective disorder. Mean age 41.4 (11.5). 78 healthy controls.</td>
<td>Relationship Questionnaire, RQ,</td>
<td>Relational style predicts attribution style in patients. Higher secure attachment ratings predicted lower ‘personalising bias’ (attributing negative events to others rather than to situational factors) scores in the patient group along with increased willingness to attribute negative and positive events to situational factors.</td>
</tr>
<tr>
<td>Study</td>
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</table>
| Berry et al. (2008)   | 77 patients with a diagnosis of schizophrenia, 15 patients with a diagnosis of schizoaffective disorder and 4 were experiencing a psychotic episode. Mean age 44 (12.8). 75 mental health workers | PAM RQ                         | Avoidant attachment was associated with positive and negative symptoms and paranoia ($\beta = .20$).  
Attachment anxiety and avoidance were associated with interpersonal problems and attachment avoidance with difficulties in therapeutic relationships (assessed from both psychiatric staff and patients perspectives; $r = .35$ & $r = .25$).  
Attachment ratings were found to be moderately stable over time. |
| Mulligan & Lavender (2009) | 73 patients with a diagnosis of psychosis.  
Mean age women 48.6 (14.5)  
Mean age men 39 (10.5) | ASQ Relationship Styles Questionnaire, RSQ | Insecure attachment style was associated with the patients’ ratings of parents as being uncaring.  
Early bonding and attachment style was more strongly related for women than for men. In adopted recovery style there was no difference found between men en women. Sealing over was associated with insecure attachment ($r = .41$ & $\beta = .13$). |
| Berry et al. (2009)   | 80 patients with a diagnosis of schizophrenia, schizoptypal or delusional disorder. Mean age 44 (13.3) | PAM                | Avoidant attachment was negatively correlated with parental care.  
Anxiety attachment was higher in patients who reported childhood trauma with significant others. Trauma was not a predictor for anxiety attachment when controlled for depression. |
| Blackburn et al. (2010) | 69 patients with a diagnosis of schizophrenia.  
Mean age 39 (13.78) | PAM Service attachment questionnaire, SAQ | Insecure attachment style in combination with depression indicated less attachment to services. |
| Picken et al. (2010)  | 110 patients with psychosis and substance misuse  
Median age 38 (range 18-61) | PAM                | Higher levels of anxious attachment was associated with higher number of interpersonal trauma events and PTSD, ($r = .36$). |
| MacBeth et al. (2011) | 34 patients with first episode psychosis. Mean age 23.32 (7.59) | AAI                | 26.5% was coded secure attached. No associations between the attachment narratives and symptoms were found.  
Secure attachment was correlated with better service engagement and higher levels of mentalization (i.e reflective functioning). |
| Berry et al. (2011)   | 73 patients with a diagnosis of schizophrenia spectrum disorder. Mean age 39.1 (11.3). | PAM                | Attachment anxiety was associated with severity and distress when hearing voices ($r = .29$ & $r = .32$). Attachment avoidance was associated with rejection, criticism and threat in relationships with voices ($\beta = .33$ & $\beta = .52$). |
### Table 2. Overview of studies investigating attachment in patients with a diagnosis of psychosis. (*Continued*)

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<tbody>
<tr>
<td>Kvrgic et al. (2011)</td>
<td>127 patients with chronic schizophrenia or schizoaffective disorder. Mean age 44.6 (11.53).</td>
<td>PAM</td>
<td>Insecure attachment showed associations with psychotic symptoms, depression, working alliance and service engagement ($r = .20$).</td>
</tr>
</tbody>
</table>

### Table 3. Overview of studies investigating attachment and psychotic phenomena in non clinical samples. (*Continued*)

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Method of assessing attachment</th>
<th>Key results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilson &amp; Costanzo (1996)</td>
<td>273 young adults. Mean age 19.3 (range 15.5-22.75).</td>
<td>Trichotomous Measure AAS</td>
<td>Secure attachment was associated with low positive and negative schizotypy. Anxious attachment was associated with positive and negative schizotypy and avoidant attachment with positive and negative schizotypy. Interaction anxiety and avoidance predicted magical thinking ($R^2 = .03$). Secure attachment protects individuals from anhedonia ($R^2 = .06 -.14$ for different assessments).</td>
</tr>
<tr>
<td>Berry et al. (2006)</td>
<td>323 undergraduate and postgraduate students at the University of Manchester. Mean age 21 (range 17-67).</td>
<td>PAM RQ</td>
<td>Positive psychotic phenomena were associated with anxiety in attachment relationships ($r = .27 -.42$), and social anhedonia ($r = .42$) with avoidance in attachment relationships.</td>
</tr>
<tr>
<td>Berry et al. (2007)</td>
<td>304 students from the University of Manchester. Mean age 21 (range 18-53).</td>
<td>PAM Attachment History Questionnaire, AHQ</td>
<td>Associations between parental overprotection, feelings of insecurity, low levels of peer affection and anxiety were found. Associations between low levels of maternal care, feelings of insecurity, low levels of peer affection and avoidance were found. Specific associations between anxiety and cognitive disorganization and between avoidance and introvertive anhedonia were found ($r = .50$). Avoidance was found to be a predictor of unusual experiences like anomalous experiences and magical thinking ($\beta = .3$).</td>
</tr>
<tr>
<td>Berry et al. (2008)</td>
<td>20 staff from psychiatric services in Greater Manchester. 21 patients with a diagnosis of schizophrenia and 5 patients with a diagnosis of schizoaffective disorder. Mean age patients 49 (14.9).</td>
<td>Staff Attachment Style</td>
<td>Lower staff scores on the anxiety and avoidance scales were associated with positive therapeutic relationships. Higher staff avoidance was associated with more differences of the staff and patient ratings of patients' interpersonal problems and poorer staff psychological mindedness.</td>
</tr>
</tbody>
</table>
Table 3. Overview of studies investigating attachment and psychotic phenomena in non clinical samples. (Continued)

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Method of assessing attachment</th>
<th>Key results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meins et al. (2008)</td>
<td>154 undergraduate students. Mean age 20.6 (2.98).</td>
<td>RQ</td>
<td>Attachment anxiety predicted paranoia ($\beta = .46$). Attachment anxiety and avoidance predicted negative schizotypal symptoms.</td>
</tr>
<tr>
<td>Pickering et al. (2008)</td>
<td>503 students from a UK university. Mean age 20.9 (5.22).</td>
<td>RQ</td>
<td>Attachment anxiety ($r = .33$) and avoidance ($r = .38$) were predictors of paranoia. No such relationship was found for hallucinations.</td>
</tr>
<tr>
<td>McBeth et al. (2008)</td>
<td>213 undergraduate students. Mean age 20.28 (2.82).</td>
<td>RSQ</td>
<td>Insecure (particularly avoidant) attachment and interpersonal distancing (social mentality) were associated with the development of paranoid ideation ($\text{anxious } \beta = .18$, avoidant $\beta = .08$). Hallucinatory phenomena were predicted by avoidance strategies.</td>
</tr>
<tr>
<td>Tiliopoulis &amp; Goodall (2009)</td>
<td>161 British non clinical adults. mean age 46.9 (18.9)</td>
<td>Experience in Close Relationships, ECR</td>
<td>Anxious attachment was related to both positive ($r = .32$) and negative schizotypy ($r = .25$). Avoidant attachment was related to negative schizotypy ($r = .37$).</td>
</tr>
</tbody>
</table>

Results indicated that the patients had higher levels of preoccupation (attachment anxiety), discomfort with closeness and a greater need for approval in peer relations compared to the controls. Associations between insecure adult attachment style and psychosis have also been replicated by three studies, using self-report measures (Ponizovsky, Nechamkin, & Rosca, 2007; Berry, Barrowclough, & Wearden, 2008; Kvgic et al., 2011). In order to study associations between symptomatology and attachment, positive and negative symptoms have been assessed separately.

5.1.1 Positive symptomatology. In three self-report studies with clinical samples, modest associations (correlation coefficients ranging from .18 - .35) between attachment avoidance and positive symptoms were found (Ponizovsky et al., 2007; Berry et al., 2008; Kvgic et al., 2011). Research with non-clinical samples also suggests that insecure avoidant attachment is associated with subclinical psychotic symptomatology. Associations between attachment avoidance and positive schizotypy have been replicated with different methods of assessing attachment, group comparisons and correlational designs (Wilson & Costanzo, 1996; Berry, Band, Corcoran, Barrowclough, & Wearden, 2007; Pickering, Simpson, & Bentall, 2008; MacBeth et al., 2008).

Two clinical studies found no association between anxiety and positive symptoms (Berry et al., 2008; Kvgic et al., 2011), whereas one study did (Ponizovsky et al., 2007). This discrepancy in findings may be due to the use of different attachment assessments (PAM vs. Trichotomous Measure) and suggest that the potential relationship between attachment anxiety and positive symptoms may not be as robust as attachment avoidance.
In line with Ponizovsky et al’ (2007), anxious attachment has also been associated with positive schizophrenia in non-clinical samples (Berry et al., 2006; Berry et al., 2007; Wilson & Costanzo, 1996; Meins et al., 2008; Pickering et al., 2008; Tiliopoulou & Goodall, 2009). Research investigating associations between specific types of positive symptoms and attachment may help to explain these findings.

5.1.1.1 Specific positive symptoms. Cognitive models of psychosis link cognitive biases and deficits to the development of specific psychotic symptoms such as paranoia. These biases and deficits are suggested to be a result of early childhood trauma (Morrison, 2009) and/or environmental adversities (Bentall & Fernyhough, 2008). Garety et al. (2001) suggest that paranoia is maintained by negative beliefs about others and social withdrawal, which are both characteristics of avoidant attachment patterns (Freeman, Garety, Kuipers, Fowler, & Bebbington, 2002). Berry et al. (2008) investigated associations between attachment and paranoia in patients and found positive correlations between avoidance and severity of paranoid symptoms. This association remained significant, after controlling for total symptom scores, implying that more avoidance in paranoid patients was not attributed to illness severity. A study using the AAI (MacBeth et al., 2011) in a first episode sample found no relation between attachment classifications and paranoia or delusions in general. These discrepancies may be due to the possible low levels of positive psychotic symptoms in this sample, or the use of a narrative versus self-report measures as well as the small sample size in the AAI study.

Three non-clinical studies found both avoidant and anxious attachment to be related to paranoia (Berry et al., 2006; MacBeth et al., 2008; Pickering et al., 2008). One study found only anxious attachment to be associated with paranoia (Meins et al., 2008). Inconsistencies between these results may be due to different statistical analyses used. These associations between anxious attachment and paranoia are in contrast to clinical research. Attachment anxiety is associated with preoccupation with relationships and rejection (Feeney et al., 1994). It is possible that this hypersensitivity coupled with a poor self-image leads the individual to interpret social situations as threatening. However, hypersensitivity to rejection and poor self-image may not be sufficient to trigger clinical levels of paranoia. It is also possible that the association between attachment anxiety and paranoia in Berry et al’s (2008) study failed to reach significance due to reduced power.

Auditory hallucinations are a core symptom of psychosis, which have been suggested to mirror interactions with relationships in general (Birchwood et al., 2004). Attachment style is an underlying guide for social interactions, therefore insecure attached individuals who experience difficulties with others in daily life could experience more negative voices. Berry, Wearden, Barrowclough, Oakland and Bradley (2011) were the first to investigate voice hearing as a separate construct in a clinical sample and found attachment anxiety to be positively correlated to severity and distress in relation to voice hearing. Attachment avoidance was found to be associated with experiencing ‘rejection or criticism’ and ‘threat’ when hearing voices.

Hallucinatory phenomena were also investigated in four studies with non-clinical samples. Berry et al. (2006) found an association between attachment anxiety and hallucinatory experiences whereas MacBeth et al. (2008) found attachment avoidance and
interpersonal distancing to play a mediating role in predicting hallucinations. One of the remaining two studies (Pickering et al., 2008; Meins et al., 2008) found a relation which disappeared after controlling for confounders (Pickering et al., 2008). The discrepancies could be due to the authors controlling for different factors. The discrepancy in findings could also be explained by the different statistical analyses used, as three studies used correlation and regression analyses whereas Macbeth and colleagues used path analyses and structural equation modelling. It is also questionable whether these studies with non-clinical samples can provide useful data for understanding voice hearing in psychosis, and in particular the nature of the person’s relationship with the voice, since the majority of items on schizotypy questionnaires refer to unexplained sounds rather than voices. The elevated scores of these participants may therefore not reflect hearing actual voices.

5.1.2 Negative symptomatology. Two clinical studies (Berry et al., 2008; Ponizovsky et al., 2007) found an association between attachment avoidance and negative symptoms, but this was not replicated by Kvrgic et al. (2011). Kvrgic et al. (2011) suggest this discrepancy could be due to the low levels of negative symptoms and the different gender distribution of their sample (66% male compared to 100% male in Ponizovsky et al’s study). No associations between anxiety and negative symptoms were found in these clinical studies and only one non-clinical study found medium effect (r = .25) (Tiliopoulos & Goodall, 2009). Research with non-clinical samples also suggests that insecure avoidant attachment is associated with negative symptoms. Associations between attachment avoidance and negative schizotypy have been replicated with different methods of assessing attachment, group comparisons and correlational designs (Wilson & Costanzo, 1996; Berry et al., 2006; Berry, Band, Corcoran, Barrowclough, & Wearden, 2007; Meins et al., 2008; Tiliopoulos & Goodall, 2009).

5.1.2.1 Specific negative symptoms. Anhedonia is a core negative symptom of psychosis as well as schizotypy and is defined as a loss of interest in obtaining pleasure from activities which are usually enjoyable (Raine, 1991). Social anhedonia therefore refers to an inability to experience positive feelings in social relationships (Berry et al., 2006) and to social withdrawal behaviour (Wilson & Costanzo, 1996). Attachment style is considered to be a ‘guide’ that influences thoughts, feelings and behaviours in these social interactions and may therefore influence an individual’s expectations, interest and engagement in social interactions. No studies in clinical samples have yet investigated social anhedonia and attachment. However, three studies investigated associations between social anhedonia and attachment in non-clinical samples (Berry et al., 2006; Berry et al., 2007; Wilson & Costanzo, 1996). A positive association between attachment avoidance and social anhedonia was found (Wilson & Costanzo, 1996). The consistency in these findings suggests a robust relationship between attachment avoidance and social anhedonia in non-clinical samples and supports links between avoidant attachment and negative symptoms in clinical samples.

5.1.3 Course of illness. Only one study investigated whether attachment style was associated with course of illness in a sample of 30 patients with schizophrenia (Ponizovsky et al., 2007). Patients with an insecure attachments (both avoidant and anxious) had a significantly
earlier age of onset, compared to individuals with a secure attachment. In addition, patients with an avoidant attachment style had a longer duration of hospitalization compared to patients with a secure attachment style. Although these findings should be interpreted with caution, due to the small sample size and the use of the simple three-item Trichotomous Measure, the authors suggest that, insecure attachment style could be a vulnerability factor for a more severe course of illness in later life. Being insecurely attached is associated with social withdrawal and poorer relationships with others, which may be a source of stress in itself and prevent individuals from benefitting from the buffering effects of positive social relationships. However, as the only study in this area is cross-sectional, it is possible that having a more severe course of illness, leads individuals to develop more difficulties in attachment relationships and therefore a more insecure attachment style.

5.2 Recovery Style

It is hypothesised that in recovering from psychosis, individuals use either a ‘sealing over’ or an ‘integrative’ recovery style (McGlashan, 1987). The former reflects an inability to recognise and understand psychotic experiences and the latter is characterised by recognising the links between previous psychotic and present experiences. Individuals with a diagnosis of psychosis tend to use avoidant coping strategies like ‘sealing over’ more often than ‘integrative’ strategies (Drayton, Birchwood, & Trower, 1998). However, integrative styles are related to less relapse and better social functioning. Birchwood (2003) theorises that earlier difficulties in attachment relationships, which may result in insecure attachment, impoverishes the individual’s ‘secure internal base’. Without such a secure base, individuals are less able to integrate and explore experiences of psychosis, and result in adopting a sealing over recovery style. Tait and colleagues (2004) explored the concepts of recovery style, earlier parental experiences and attachment in a sample with psychosis. This study found that insecure attachment styles and more negative recollections of earlier parental experiences were associated with sealing over coping styles, which was also related to less engagement with services, in a sample (n = 50) with acute psychosis. Although longitudinal research is necessary to assess the direction of relationships, these findings suggest a potential role of attachment in the development of (mal)adaptive recovery styles (Berry et al., 2007). It is therefore suggested, in accordance with Birchwood’s theory (2003) that early attachment experiences as well as current attachment styles may be valuable to consider in therapeutic interventions when recovering from psychosis.

A more recent study by Mulligan and Lavender (2009) found that 20% of the male and 33.3% of the female individuals in a clinical sample used a ‘sealing over’ recovery style. Attachment style was assessed with the ASQ (Feeney et al., 1994) and consistent with earlier research, a ‘sealing over’ recovery style was associated with the insecure attachment dimension ‘relationships as secondary to achievement’ (Tait et al., 2004). Recollections of negative parenting were also related to insecure adult attachment but not to recovery style. The number of female participants in this sample was small (n = 18) compared to the male participants (n = 55) and only a small percentage used a ‘sealing over’ recovery style. The authors suggest that this may have reduced the change of finding significant effect sizes. The use of the ASQ in this study and in earlier research should also be taken into consideration,
when interpreting findings in relation to attachment and recovery style. The ASQ has five attachment subscales, rather than the anxiety and avoidance dimensions which have been found to underlie the majority of self-report measures of attachment. Future research should therefore assess associations between the two dimensions of attachment anxiety and avoidance and recovery style.

5.3 Attributional style

The tendency to attribute the cause of social actions to oneself, others or situational factors is defined as ‘attributional style’. It has been suggested that attachment style might influence attributional style (Berry et al., 2007), since insecure attached individuals in the general population, who have a negative self-image, are more likely to attribute negative events to themselves rather than to the situation. Donahoe and colleagues (2008) investigated the relationship between attributional style and relational (attachment) style in an outpatient sample with chronic schizophrenia compared to controls. Consistent with studies in the general population, they found that patients with a more secure relationship style tended to attribute negative events more to situational factors and less to either themselves or others. These findings highlight the importance of considering attachment experiences when helping individuals with psychosis to reappraise social information.

5.4 Mentalization

Mentalization is defined as the ability to have understanding and insight into mental states, such as beliefs, emotions and intentions, of yourself and others. Development of functional mentalization skills is hypothesised to be disrupted by negative interpersonal experiences, including difficulties in early attachment relationships. MacBeth et al., (2011) found that patients with an insecure dismissive classification had lower mentalization skills than the secure and preoccupied classification groups. The authors state that impaired mentalization skills could lead to interpersonal difficulties and they suggest that notion of impaired mentalization and attachment organization together should be taken into account in understanding psychosis and improving recovery.

5.5 Interpersonal functioning

There is evidence that attachment styles in adults are good predictors of interpersonal functioning (Crowell, Fraley, & Shaver, 1999). Interpersonal functioning is also found to influence course and vulnerability of psychosis and a high percentage of negative interpersonal events and trauma are found in psychotic samples (Read, van, Morrison, & Ross, 2005). For example, the previously mentioned meta-analysis found that the risk of psychosis was increased by an odds ratio of 2.8 when individuals had experienced childhood trauma and adversities (Varese et al., 2012). A study of patients with psychosis and substance misuse found that higher levels of attachment anxiety were related to a higher amount of interpersonal trauma's (Picken, Berry, Tarrier, & Barrowclough, 2010). In the study by Couture et al. (2007), which compared attachment and social functioning in groups of patients with early onset psychosis and a healthy control group it was found that attachment was a predictor of social and individual living skills, inappropriate community behaviour and quality of life.
Berry and colleagues (2008) investigated interpersonal problems in individuals with psychosis and found associations between the two attachment dimensions and severity of interpersonal difficulties. More specifically, attachment anxiety was associated with overly demanding behaviour and attachment avoidance was associated with interpersonal hostility, as measured by reports of psychiatric staff. The authors argue that since these difficulties may lead to problems in relationships between patients and their care workers it could be beneficial for staff members to understand the origins of the behaviours and avoid being drawn into perpetuating dysfunctional interactions.

5.6 Expressed emotion

A study by Dozier and colleagues (1991) investigated associations between the AAI and the construct of Expressed Emotion (EE) in relatives of people with psychosis. The term EE refers to a set of emotional responses towards patients, as part of a reciprocal chain of interactions, and is measured from respondents' speech and certain non-verbal cues. The influence of familial EE on the course of psychosis is well established, with particular categories of EE (namely hostility, criticism and emotional over involvement) associated with more frequent relapse (Wearden, Tarrier, Barrowclough, Zastowny, & Rahill, 2000). Patients with dismissing and preoccupied attachment strategies were more likely to have family members who were rated as over-involved. The authors suggest that in the case of preoccupied patients, over-involvement in relatives develops in response to overt expressions of distress; and in the case of dismissing patients, it may develop as relatives perceive the individual's underlying neediness or attempt to compensate for his or her lack of reliance on other sources of support (Dozier et al., 1991). However, Berry et al (2007) argued that as only 6 relatives were rated as critical and there were only 21 relatives in the sample overall, it is difficult to draw any firm conclusions from the study. To our knowledge there is no recent research investigating the concept of EE and attachment in clinical samples.

5.7 Social networks

Berry and colleagues (2007) asked patients to report on the number of 'attachment relationships' which was defined as: 'people who were important in their life, with whom they had some close emotional ties, and who they saw regularly'. Results indicated that patients with psychosis tended to have relatively few attachment relationships (median = 2), involving mostly family members and mental health professionals. Insecure attachment with care workers and parental relationships was positively associated with insecure attachment in general close relationships. Therefore, assessing attachment style by asking about close relationships in general, an approach adopted by the majority of self-report measures, would appear to capture the nature of the key attachment relationships in this group. However, the authors found that levels of the attachment dimensions did vary across different attachment relationships which suggest that patients differ in the way they relate to others. When this is true it could be a potential for developing more positive relationships. It would be particularly useful in terms of informing clinical practice, to investigate what factors promote the development of more positive attachment relationships.
5.8 Quality of life

Social support, social networks and interpersonal relationships play a significant role in determining the quality of life and since working models of attachment are frameworks for social life, insecure attachment would plausibly be associated with poorer quality of life. Two studies found attachment to be associated with quality of life in patients with a diagnosis of psychosis. The first study by Caron and colleagues consisted of a repeated measures design with a 6-month interval. Two aspects of social support were found to be the best predictors of quality of life (Caron, Lecomte, Stip, & Renaud, 2005); ‘Attachment’ defined as emotional support or a sense of emotional closeness and security and ‘Reassurance of worth’. However, attachment was not assessed with a specific attachment measure but as a component of the social provisions scale (Cutrona & Russell, 1987).

In a second study by Couture et al. (2007), quality of life, as a domain of social functioning was investigated. The authors found less ‘discomfort with closeness’ as a predictor of quality of life.

The findings indicate that attachment style is related to quality of life and could therefore suggest that designing therapeutic interventions to improve attachment security may improve quality of life.

5.9 Therapeutic relationships and service engagement

Therapeutic alliance is a predictor of treatment outcomes (Horvath & Symonds, 1991). Bowlby argued that the patient-therapist relationship is influenced by attachment style and that attachment theory can improve our understanding of therapy outcome (Mikulincer & Shaver, 2007). Since mental health professionals play a significant role in the lives of people with psychosis, the therapeutic attachment relationship could provide a secure base to form a therapeutic alliance (Adshead, 1998; Mikulincer & Shaver, 2007).

Patients’ attachment style in relation to therapeutic alliance was assessed in two studies (Berry et al., 2008; Kvrgic et al., 2011). Avoidant attachment, as assessed with the PAM, was negatively correlated to therapeutic alliance. In the Berry study (2008), the association remained significant after controlling for illness severity and the therapeutic alliance was rated by both patients and the staff. Attachment anxiety was not associated to therapeutic alliance in this study but was negatively associated with alliance in the Kvrgic et al. (2011) study, albeit with small effects. The authors suggest that attachment anxiety might be associated with difficulties in alliance in the early stages of therapeutic relationships or be associated with more ruptures in alliance which were not captured by their simple single time-point measure of alliance.

The earlier review paper by Berry and colleagues summarised studies investigating associations between an individuals’ attachment style and engagement with services. Engaging in treatment services is an important treatment outcome and people with psychosis often experience difficulties in engaging in services (Tait, Birchwood, & Trower, 2002). These studies reviewed by Berry and colleagues included research involving both the AAI and a self-report attachment study. There is evidence of associations between insecure attachment and poor relationships with services, including treatment compliance, poorer use of treatment,
rejection of treatment providers, less self-disclosure and poorer engagement (Dozier et al., 1994; Dozier, 1990; Dozier, Lomax, Tyrrell, & Lee, 2001; Dozier & Lee, 1995). Kvrgic et al (2011) found that attachment anxiety was positively related to treatment adherence. It is possible that anxiously attached individuals are more likely to adhere to treatment as they fear rejection from caregivers if they do not, but further research is needed to examine the role of attachment anxiety and therapeutic relationships.

Another important factor to consider is the fact that the majority of patients with psychosis who receive treatment are in contact with many mental health professionals and not with one specific therapist. It may therefore be possible for patients to feel attached to several persons or mental health institutions as a whole. An instrument specifically developed to assess patients’ feeling of attachment to services is the ‘Service Attachment questionnaire’ (SAQ; Goodwin, Holmes, Cochrane, & Mason, 2003). The SAQ includes concepts consistent with attachment theory (such as secure base, sensitivity to distress, emotional containment and consistency to input) and can be used to measure the ability of mental health services to meet the attachment needs of patients (Goodwin et al., 2003).

A recent study found that patients with insecure attachment style and depression showed less secure attachment to mental health staff members and the hospital as an entity, as assessed with the SAQ (Blackburn, Berry, & Cohen, 2010). The study suggests that patients with psychosis are capable of describing their level of attachment to services. However, future studies need to substantiate the validity of attachment to services in terms of engagement with services and therapeutic gains. In addition, future research needs to clarify conceptual overlaps between individual attachment, attachment to service and service engagement.

### 6. Discussion

The current paper set out to systematically review of the literature on psychosis and attachment. In doing so, it aimed to assess whether attachment theory might further our understanding of the development and maintenance of psychosis. It also aimed to identify questions for future research and any clinical implications from the findings.

The available evidence suggests that attachment patterns and styles are related to symptoms in psychosis as well as to factors that influence recovery and other key outcomes, including recovery coping style, attribution style, mentalization, social networks, quality of life, interpersonal functioning, therapeutic relationships and treatment adherence. On a conceptual level it is important to understand how attachment patterns can influence outcomes in psychosis.

In order to tie these findings together and gain a broader perspective on how to apply the attachment literature for the development of psychological interventions and treatment frameworks in psychosis, we will discuss mentalizing as mechanism which has been suggested as key mediator between attachment and psychosis (Gumley & Schwannauer, 2006; Read & Gumley, 2008; MacBeth et al., 2011).
Mentalization is a form of social cognition which enables individuals to accurately interpret and process interpersonal relationships and the social world in general, by understanding behaviour of self and others in terms of intentional mental states (e.g. needs, desires, feelings, beliefs, goals, purposes and reasons) (Fonagy, Bateman & Luyten, 2012). Development of functional mentalization skills emerges in secure attachment environment and can be disrupted by negative interpersonal experiences, including difficulties in early attachment relationships (Fonagy et al., 2012).

In a meta-analysis, robust evidence was found of mentalization impairment in psychosis (Sprong, Schothorst, Vos, Hox, & Van England, 2007), and this impairment was suggested to be trait- more than state-dependent, since impairments are apparent in samples in remission. When the ability to mentalize is impaired the understanding of mental states is compromised which may lead to misattributions of the intention of others and difficulties in maintaining social functioning, which manifests in positive symptoms (Frith, 1992). Both insecure attachment and impaired mentalization have been found to co-occur in patients with paranoia and have been proposed as possible underlying mechanisms of these symptoms (Bentall et al., 2009; Berry et al., 2008). Understanding the role of attachment in symptoms may help patients and their care workers to gain insight into the reasons for the development or persistence of symptoms. Clinicians should therefore include routine questions in treatment about early attachment relationships that may have had a negative impact on mentalization abilities and the development of adult attachment style. These topics can be difficult for health professional to discuss but are important as they provide insight into the impact of (negative) developmental experiences on adult attachment and functioning in general and enabling patients to disclose these can be beneficial. In some cases, individuals may disclose experiences of childhood abuse. Read, Hammersley, & Rudegeair (2007) provide clear guidelines on how to raise these possible abuse issues sensitively in routine assessments.

Clinicians may use attachment theory in helping clients understand the origin and persistence of their problems in relationships. If care workers can reframe problematic interpersonal behaviours as attachment behaviours which were functional and understandable in the context of earlier relationships, this might also help reduce staff criticism and hostility. The associations between avoidant attachment and therapeutic alliance highlight the importance of extra supervision and support for staff working with people with high levels of avoidant attachment. There is evidence of associations between insecure attachment and service engagement which could be useful for understanding poor adherence in individuals with psychosis. Associations between attachment and recovery style suggest that it may be helpful to improve attachment security in a context of therapeutic relationships or other social relationships before encouraging people to explore their experiences of psychosis.

When the ability to mentalize is impaired it also manifests in interpersonal difficulties and problematic treatment engagement. Patients who used a sealing over recovery style were more likely to believe that others perceived them negatively (Tait et al., 2004). This combined with an avoidant attachment style may lead to less help seeking and engagement.
With mentalizing as mediator between attachment and psychosis, developing interventions with a focus on helping patients to repair their understanding of mental states of self and others could improve current therapies for psychosis. Mentalization based treatment is a proven successful therapy in borderline personality disorder and future research in psychosis could incorporate interventions from this treatment in order to improve the existing treatments (for further reading we refer to the ‘handbook of mentalizing in mental health practice’ Bateman & Fonagy, 2012, and to guidelines of an attachment incorporated, cognitive interpersonal approach to treating patients, recovering from psychosis and relapse prevention, ‘Staying well after psychosis’ by Gumley and Schwannauer, 2006).

7. Limitations and concluding remarks
Several limitations of the studies included in this review should be discussed. The major limitation is that all studies had a cross-sectional design, so it is not possible to determine causal relationships. There is longitudinal prospective evidence of insecure attachment in childhood predicting other types of psychopathology in adult life, including, anxiety disorders (Warren, Huston, Egeland, & Sroufe, 1997), borderline personality disorders (Fonagy et al., 1996) and dissociative disorders (Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997). Prospective designs in future research are essential to investigate the causal directions in the relationship between attachment and psychosis. It is, however, important to note that not all individuals with psychosis have an insecure attachment style. Berry and colleagues (2007) have suggested that attachment might be a non-specific risk factor for psychopathology and that the role attachment plays in psychosis should be considered alongside a wide range of contextual factors.

Other limitations are the self-report assessments used in a high percentage of the studies. Self-report questionnaires are liable to self-report bias or social desirability bias. Studies also vary in terms of attachment classification. This means that it is difficult to compare studies and integrate findings. Although it is encouraging that several key findings have been replicated using the AAI and self-report questionnaires, further research is needed to compare different methods of assessing attachment in samples with psychosis.

The generalizability of the findings is also limited in terms of sample characteristics. Only two clinical studies included patients with a first episode psychotic disorder, compared to the other clinical studies and therefore participants were relatively old, in a more severe stage of the disorder and had experienced a larger amount of treatment. The majority of schizotypy studies used non-clinical student samples which consist of young adults, mostly women that are currently not involved in romantic attachment relationships. Future research with non-clinical samples should use large heterogeneous community samples to rule out selection bias. Similarly, clinical participants who give informed consent to participate could be a group with a relatively secure attachment style.

The majority of studies have only assessed the concept of patient attachment style. There is some evidence that staff attachment style may play a role in the development of positive therapeutic relationships (Berry et al., 2008). Future studies should therefore
consider the way in which patient and staff attachment style interacts to determine relationships quality.

The current review aimed to provide a better understanding of the way attachment characteristics are involved in the development and persistence of psychosis and proposed mentalization as mechanism between development of early attachment and clinical relevant factors in psychosis. Focus on understanding and repairing mentalization skills may be a therapeutic strategy to improve the development of secure attachment relationships for positive outcomes in treatment.

Reference List


