**Title: Does insecure attachment lead to psychosis via dissociation?**

**A systematic review of the literature**

Short title: Attachment and dissociation in psychosis

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**Abstract**

**Purpose:** Insecure attachment may constitute a vulnerability factor for psychosis, and dissociation may be a key mechanism in the development of auditory hallucinations specifically. While there is good evidence for the role of these processes in isolation, it is unclear whether dissociation accounts for the association between insecure attachment and psychosis. This systematic review takes a theory driven approach to examine proposed causal relationships across the clinical and non-clinical literature.

**Methods:** We searched five databases (PubMED, Web of Science, PsycINFO, CINAHL and ETHOS) for published and unpublished research examining attachment, dissociation and psychosis. Two independent reviewers extracted the data and assessed the quality of all included studies.

**Results:** We identified 242 potential articles and included 13 in the final review (2096 participants). We found that (1) disorganised attachment was consistently associated with dissociation and inconsistently associated with voices and paranoia, (2) dissociation was associated with voices and paranoia, and these links were stronger in clinical samples, and (3) dissociation played a role in the impact of insecure attachment on voice hearing and paranoia in clinical groups.

**Conclusions:** This is the first review to synthesise the research examining attachment, dissociation and psychosis. The evidence is consistent with proposed causal hypotheses and raises conceptual and measurement issues, e.g., the need to clarify the relative contributions of different insecure attachment styles, and utilise behavioural/observational measures to strengthen study designs. Most importantly, we need experimental and longitudinal studies to confirm causal links and targets for treatment.

**Keywords:** Attachment; dissociation; psychosis; auditory hallucinations; voice hearing; paranoia; systematic review.

**Introduction**

*Psychosis* refers to thinking and perceptions that differ from commonly shared reality, including hallucinations (perceptions in the absence of external stimuli), delusions (firmly held beliefs despite evidence to the contrary), and disorganised or confused thinking (Cooke, 2014). *Auditory hallucinations* (AHs) are typically experienced as voices, and reported by up to 80% of people with a diagnosis of schizophrenia (McCarthy-Jones et al., 2017). *Paranoia* describes unfounded or exaggerated beliefs about interpersonal threat, ranging from suspiciousness to persecutory delusions which are reported by ~65% of people with psychosis diagnoses (Collin et al., 2023).

There is now broad agreement that experiences traditionally associated with psychosis occur on a clinical/non-clinical continuum and are maintained by similar psychological processes (van Os et al., 2009). Both AHs and paranoia are present in a range of mental health conditions and reported by a substantial minority of the general population (Freeman et al., 2005; Honig et al., 1998; Leede-Smith et al., 2013). While differences in frequently, severity, appraisal and impairment distinguish clinical and non-clinical groups (Nayani & David, 1996; van Os et al., 2009; Verdoux et al., 2002), we can examine psychotic-type experiences and vulnerability factors in analogue samples to inform our understanding of psychosis in clinical populations.

Insecure attachment has been investigated as a vulnerability factor for psychosis across the clinical/non-clinical continuum. Attachment theory assumes that early interactions with primary caregivers lead to the development of *internal working models* – representations of the self and others that guide thinking, feeling and behaviour in subsequent relationships (Bowlby, 1969). The most commonly used framework in social and clinical psychology identifies three main attachment styles: secure, insecure-anxious and insecure-avoidant (Mikulincer & Shaver, 2010). Ainsworth et al. (1978) originally labelled infant attachment patterns as secure, ambivalent/resistant and avoidant. Later, with the application of this typology to adult attachment, Main and Goldwyn (1988) used the terms secure, preoccupied and dismissing (to categorise responses in the Adult Attachment Interview). While a number of descriptors are used in the literature, these comparable attachment styles can be labelled secure, anxious and avoidant (Mikulincer & Shaver, 2010). In the present review, we use the terms proposed by Mikulincer and Shaver (2010) and include corresponding terms in parentheses, where used by the original authors. We use the term *insecure* to denote attachment styles that are not secure.

*Secure attachment* develops when a caregiver is generally available and responsive, and is characterised by a broadly positive view of self and others, effective emotion regulation, and an ability to manage close relationships; *anxious* (preoccupied) attachment typically follows inconsistent caregiving, resulting in negative beliefs about the self, hyperactivation(escalation) of emotion to access care, and ambivalence in close relationships; *avoidant* (dismissive) attachment typically follows physically or emotionally absent caregiving, resulting in negative beliefs about others, deactivation (suppression) of emotion, excessive self-reliance and avoidance of close relationships (Mikulincer & Shaver, 2010). A fourth style, *disorganized attachment,* describes an unpredictable combination of anxious and avoidant patterns (Main & Solomon, 1990), and is thought to develop in response to frightening, confused or inconsistent caregiving, possibly due to caregivers’ own unresolved trauma (Main & Hesse, 1990). Similarly, *fearful attachment* describes high levels of both anxious and avoidant patterns – a desire for close relationships alongside fear and avoidance of others (Bartholomew & Horowitz, 1991). Some argue that fearful and disorganised attachment are analogous (Alexander, 1992), while others conceptualise disorganised attachment as distinctly unpredictable (Paetzold et al., 2015).

A series of systematic reviews and meta-analyses now convincingly demonstrate an association between insecure attachment and psychotic experiences in adulthood, in clinical and non-clinical populations (Berry et al., 2007; Carr et al., 2018; Gumley et al., 2014; Korver-Nieberg et al., 2014; Lavin et al., 2019; Murphy et al., 2020). What is less clear is how insecure attachment leads to psychosis, in terms of child development and mechanisms involved. Dissociation has been posited as a likely causal process in the relationship between insecure attachment and psychosis.

*Dissociation* is defined as a lack of normal integration of thoughts, feelings and other internal experiences in consciousness and memory (Bernstein, 1986). This ranges in severity from common ‘tuning out’ to extreme absences, and may include gaps in memory (amnesia), a sense of distance from one’s own body (depersonalisation), a sense of distance from immediate surroundings (derealisation) and fragmentation of a sense of self (identity disturbance) (Bremner et al., 1998).

Dissociation is associated with trauma in clinical and non-clinical populations (Dalenberg, et al., 2012), and may be a direct consequence of the trauma, or function to avoid or reduce associated physical and emotional pain (Dorahy & van der Hart, 2007; Ogawa et al., 1997). Systematic and meta-analytic reviews demonstrate robust associations between dissociation and both hallucinations and paranoia across the clinical/non-clinical psychosis continuum (Longden et al., 2020; Pilton et al., 2015).

Liotti (1992; 2009) conceptualises disorganised attachment as an early dissociative process; in the context of frightening and confusing early relationships, distinct internal working models develop simultaneously and separately (‘split off’) from one another, and this provides a foundation for dissociation in adults. In this way, dissociation can be conceptualised as part of personality development and adaptive in enabling the child to maintain a relationship with a potentially damaging caregiver (Gumley & Liotti, 2019; Liotti, 1992; 2009; Moskowitz et al., 2019). When a child is both drawn towards and fearful of their caregiver, the fight or flight system is activated as well as the attachment system, urging the child to approach and to withdraw, resulting in a confused and confusing set of responses. Importantly, longitudinal research shows that disorganised attachment in childhood predicts dissociation in adulthood (Carlson, 1998; Ogawa, et al, 1997; Hesse & van IJzendoorn, 1998).

The evidence suggests that insecure attachment, typically following early interpersonal adversity, constitutes a vulnerability factor for psychosis (Gumley et al., 2014; Read & Gumley, 2008), and that dissociation may be a key causal mechanism for both voices and paranoia (e.g., Longden et al., 2020; Moskowitz & Corstens, 2007; Moskowitz et al., 2012). In line with this existing literature, the cognitive attachment model of voice hearing (CAV; Berry et al., 2017) incorporates cognitive, attachment and dissociative processes to explain the development and maintenance of distressing voices. In this model, voices are conceptualised as dissociated trauma-related memories experienced as external due to poor source monitoring. Where voices are malevolent or threatening (e.g., *“we’re going to get you”*), paranoia may arise from associated appraisals (e.g., *“they’re going to get me”*). The model also assumes that early adversity increases the likelihood of developing a disorganised attachment style, which predisposes the person to dissociation, increasing the likelihood of voice hearing further.

Recent evidence partially supports a similar process for paranoia; in an online sample of people with self-reported psychosis, disorganised attachment (along with negative beliefs about others) mediated the association between trauma and paranoia, while controlling for voices and mood (Humphrey et al., 2022). These authors did not measure or make predictions about the role of dissociation.

In summary, insecure attachment and dissociation are likely to contribute to the development of psychosis. This review addresses the hypothesis that early relational trauma predisposes a disorganised attachment style, which increases proneness to dissociation in response to stressors, in turn triggering psychotic experience. Previous reviews have found associations between attachment and psychosis (e.g., Lavin, et al, 2020) and dissociation and psychosis (e.g., Longden, et al, 2020); however, it remains unclear whether dissociation *accounts for* the impact of insecure attachment on psychosis/psychotic-type experience. This review takes a theory driven approach to examining proposed causal relationships between insecure attachment, dissociation, and psychosis/psychotic-type experiences across the clinical/ non-clinical spectrum.

Method

Search strategy and terms

We followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Page et al., 2020) to report published and unpublished empirical studies examining attachment style and dissociation in people with psychotic experiences. To ensure a comprehensive review of the literature, we searched five databases: PubMED, Web of Science, PsycINFO, CINAHL and British Library EThOS (for unpublished dissertations) from inception to 01.08.2023.

We utilised three search strings; (1) dissociat\* OR “multiple personalit\*” OR depersonalisation OR depersonalization OR derealisation or derealization OR absorption AND (2) attachment OR “attachment theory” OR “internal working models” OR “felt security” AND (3) psychos?s OR psychotic OR schizophreni\* OR schizotypy OR paranoi\* OR delusion\* OR hallucinat\* OR voices. References and citations of previous relevant reviews and all eligible articles were hand-searched, and this process was repeated by an independent researcher.

Inclusion and exclusion criteria

We selected English language publications of studies that utilised: (1) quantitative methodology, (2) a standardised measure of attachment, (3) a standardised measure of dissociation, and (4) a standardised measure of psychosis/psychotic type experiences or recruited a sample with psychosis/psychotic type experiences. Exclusion criteria were studies that: (1) were not published in English, (2) used qualitative methodology only, and (3) were books, book reviews, book chapters, conference extracts, case reports or other reviews.

Screening and data extraction

We established eligibility at two stages: (1) title and abstract screening, and (2) full text article screening (see Figure 1). Screening and data extraction were completed by the first author and an independent researcher, and any disagreements (one) resolved through discussion with the research team. The independent researcher was an undergraduate psychology student instructed in the screening and data extraction process by the first author.

Figure 1 about here

Quality assessment

We used the Joanna Briggs Institute (JBI) Checklist for Analytical Cross-Sectional Studies (JBI-CACSS) to assess cross-sectional studies, and the JBI Checklist for Quasi Experimental Research (JBI-CQER) to assess experimental studies (Moola et al., 2017). The JBI-CACSS is the preferred tool for the quality assessment of cross-sectional research (Ma et al., 2020). The JBI-CACSS and JBI-CQER assess eight and nine aspects of research methodology and analysis respectively (see Tables 2 and 3). Items are rated yes/no/unclear/not applicable. Following Mel et al. (2018), we calculated overall ratings as follows: (1) **≥**75% items scored ‘yes’ – low risk of bias; (2) 50-74% items scored ‘yes’ – moderate risk of bias; (3) ≤49% items scored ‘yes’ – high risk of bias.

**Results**

Table 1 shows data extracted for the 13 studies that met inclusion criteria. The majority (*n =* 10) were conducted in the UK, and all between 2011 and 2023, indicating a recent and growing interest in the area. Most adopted cross-sectional designs and used correlation/regression analyses.

**Table 1 about here**

Demographic characteristics

A total of 2096 participants participated in the 13 studies, of which approximately half were female (55%). Eight studies recruited clinical samples (*n* = 1098; 52%) and the most common diagnosis was schizophrenia (*n* = 316; 34%). Participants’ average ages ranged from 20 to 41.5 years (one study did not report average age). Ten studies reported participants’ ethnicity and, of these, 71% identified as White.

Measures

Seven self-report measures of attachment were used across the 13 studies (see Table 1). About half (*n* = 6) used the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991), indicating some consistency in the field. The majority (10) measured trait dissociation using the Dissociative Experiences Scale-II (DES-II; Carlson & Putnam, 1993), a level of consistency that facilitates comparisons across studies. Eleven tools measured psychotic experiences, with the Community Assessment of Psychotic Experiences (CAPE; Konings et al., 2002) used most frequently (*n* = 4).

Quality assessment

Quality assessment ratings are reported in Tables 2 and 3, with overall scores added to Table 1. All were rated as low risk overall, so we can be reasonably confident in the results. Heterogeneity across studies precluded a meta-analysis.

**Tables 2 and 3 about here**

All but two studies (Mertens et al, 2021; Wong, 2016) relied solely on self-report measures.

What is the relationship between attachment, dissociation and psychotic experiences?

Seven of the 13 studies examined associations between attachment, dissociation and AHs (Berry et al., 2018; McGonagle, 2017; Pearce et al., 2017; Puckett et al., 2023; Sitko, 2015; Williams, 2017; Wong, 2016). Of these, Berry et al. (2018), Puckett et al. (2023), and Wong (2016) ran non-clinical studies and all others recruited clinical participants with diagnosed or self-reported psychosis. Five studies examined associations between attachment, dissociation and paranoia (McGonagle, 2012; Mertens et al, 2021; Pearce et al; 2017; Puckett et al; 2023; Sitko, 2015). Of these, Mertens et al. (2021) and Puckett et al (2023) ran non-clinical studies and all others recruited clinical participants with diagnosed or self-reported psychosis. One study measured ‘unusual perceptual experiences’ in a non-clinical group (Strachan et al., 2023), and four measured ‘positive symptoms’ in clinical samples, but did not distinguish hallucinations, paranoia or other symptoms in the analyses (Austin, 2011; Degnan, 2020; de With et al; 2023; Pollard et al., 2020;). Degnan (2020) also measured negative symptoms.

Associations between attachment and dissociation[[1]](#footnote-2)

*Non-clinical studies:* These showed small to moderate positive correlations between dissociation and both anxious (preoccupied) and disorganised (fearful) attachment (Berry et al., 2018; Mertens et al., 2021; Puckett et al., 2023; Strachan et al., 2023), and a small negative association with secure attachment (Mertens et al., 2021). There was inconsistent support for a small positive association between dissociation and avoidant (dismissive) attachment (Berry et al., 2018; Mertens et al., 2021). One study did not report these correlations (Wong, 2016).

*Clinical studies:* All five studies measuring dissociation and disorganised (fearful) attachment found small to moderate positive associations (Degnan, 2020; McGonagle, 2017; Pearce et al., 2017; Pollard et al, 2020; Williams, 2017). Two studies examined associations with secure attachment and found small negative correlations (McGonagle, 2017; Williams, 2017). Three of four studies found no association with anxious (preoccupied) attachment (McGonagle, 2017; Pearce et al., 2017; Williams, 2017), and one found a small positive association (Sitko, 2015). Using a different measure, one study found large positive associations between anxious attachment and both disturbed self-awareness and depersonalization (de With et al, 2023). Four studies found no association between avoidant (dismissive) attachment and dissociation (McGonagle, 2017; Sitko, 2015; Pearce et al., 2017; Williams, 2017), one found a trend (de With et al, 2023) and one a small positive association (Degnan, 2020). Austin (2011) did not report these correlations.

*Summary:* Disorganised attachment is consistently associated with dissociation in clinical and non-clinical samples, typically with small to moderate correlations. Findings are mixed for anxious and avoidant attachment.

Associations between attachment and psychosis/psychosis experiences

*Non-clinical studies:* The non-clinical studies found small positive correlations between voice predisposition and both anxious and avoidant attachment (Berry et al., 2018) and a similar pattern for paranoia (Mertens et al, 2021). Strachan et al. (2023) also reported a small positive association between insecure attachment and unusual perceptual experiences, while Puckett et al. (2023) found no associations between voice predisposition and anxious, avoidant or disorganised attachment. When assessed through interview (rather than self-report), the association between attachment with paranoia became moderate for anxious and non-significant for avoidant attachment (Mertens et al. 2021). One study examined secure attachment, finding a small negative association with paranoia (on both self-report and interview measures), and disorganised (fearful) attachment, finding a small positive association with paranoia (again, on self-report and interview measures) (Mertens et al., 2021). Wong (2016) did not report these correlations.

*Clinical studies:* There is evidence of small to moderate associations between disorganised (fearful) attachment and both paranoia (McGonagle, 2017; Pearce et al., 2017) and positive symptoms (Degnan, 2020; Pollard et al, 2020). One study found a small positive association between disorganised (fearful) attachment and voices (Pearce et al., 2017) but two others found none (McGonagle, 2017; Williams, 2017). Two of three studies found small positive associations between anxious (preoccupied) attachment and paranoia (McGonagle, 2017; Sitko, 2015), though Pearce et al. (2017) found none. Two of these found no association between anxious (preoccupied) attachment and hallucinations (Sitko, 2015; Pearce et al., 2017) but McGonagle (2017) found a small negative association. Sitko (2015) found a moderate positive association between avoidant attachment and paranoia, but this was not replicated in the two others (McGonagle, 2017; Pearce et al., 2017). De With et al. (2023) found avoidant attachment to be strongly associated with positive symptoms of psychosis. Austin (2011) did not report these correlations.

*Summary:* The most consistent finding is for an association between disorganised attachment and paranoia. There is some evidence for associations between both anxious and avoidant attachment and psychotic experiences in the non-clinical samples, but the evidence is mixed in the clinical groups.

Associations between dissociation and psychosis/psychosis experiences

*Non-clinical studies:* These found small to moderate positive correlations between dissociation and voice predisposition (Berry et al., 2018), unusual perceptual experiences (Strachan et al., 2023), and paranoia using self-report and interview measures (Mertens et al., 2021). One study found that dissociation was not associated with predisposition to AHs (Puckett et al., 2023) and Wong (2016) did not report these correlations.

*Clinical studies:* Four of five studies found small to strong positive associations between dissociation and hallucinations (Austin, 2011; McGonagle, 2017; Pearce et al., 2017; Williams, 2017) and one study found no association (Sitko, 2015). Similarly, four of four studies found small to moderate associations between dissociation and paranoia (Austin, 2011; McGonagle, 2017; Pearce et al., 2017; Sitko, 2015). The three studies measuring positive symptoms of psychosis more broadly found moderate to strong positive associations with dissociation (Degnan, 2020; de With et al; 2023; Pollard et al., 2020). The one study that measured negative symptoms also found small positive associations with dissociation (Degnan, 2020).

*Summary:* These studies indicate that dissociation is associated with both voices and paranoia, and that these links may be stronger in clinical samples.

Associations between attachment, dissociation and psychosis/psychotic experiences

Some studies employed regression and mediation analyses to examine associations between all three variables of interest: attachment, dissociation and psychosis/psychotic type experiences.

*Non-clinical studies:* Berry et al. (2018) showed that attachment avoidance and dissociation predicted voice hearing predisposition (controlling for age and negative affect) – individuals with higher levels of attachment avoidance and/or dissociation were more prone to voice hearing. Mertens et al. (2021) found that anxious (preoccupied) attachment and dissociation mediated the effect of early adversity on paranoia (self-report and interview measures), and that disorganised (fearful) attachment and dissociation mediated the effect of early adversity on paranoia (self-report only) but found no serial mediation effect to support the hypothesis that insecure attachment preceded (increased) dissociation in the impact on (increased) paranoia. Puckett et al. (2023) found that dissociation fully mediated the effect of trait disorganised attachment on state auditory hallucinations. Strachan et al. (2023) found that insecure attachment, emotion dysregulation, negative affect and dissociation all mediated the effect of trauma on unusual perceptual experiences.

*Clinical studies:* Most clinical studies focused on the role of disorganised (fearful) attachment and dissociation on psychotic experience. Three studies evidenced the mediating role of dissociation in the link between disorganised (fearful) attachment and AHs (McGonagle, 2017; Pearce et al. 2018; Williams, 2017) – increases in disorganised (fearful) attachment were associated with increased dissociation which was in turn associated with increased AHs. Williams (2017) found that the mediation became non-significant when age, gender, ethnicity and depression were added as covariates, but remained significant when depression was removed. Interestingly, in relation to paranoia, Sitko (2015) found that dissociation moderated the effect of attachment anxiety (but not avoidance) on paranoia – as dissociation *increased*, the effect of attachment anxiety on paranoia *decreased*.

*Summary:* Dissociation is likely to play a role in the impact of insecure attachment on AHs and paranoia in clinical groups.

**Discussion**

This is the first systematic review to synthesise the literature examining the role of attachment and dissociation in people with clinical and non-clinical psychosis/psychotic type experience. Thirteen studies have been completed over the last 12 years, the majority in the UK. This shows a recent and growing interest in understanding attachment-relevant mechanisms in psychosis, and that the UK currently leads the field.

We selected studies measuring attachment, dissociation and psychosis in clinical and non-clinical samples. We found that (1)disorganised attachment is consistently associated with dissociation in clinical and non-clinical groups (with mixed evidence for associations with anxious and avoidant attachment), (2) disorganised attachment is often associated with paranoia (with mixed evidence for the impact on voices, and the impact of anxious and avoidant attachment on psychotic experiences), (3) dissociation is associated with both voices and paranoia, and these links are likely to be stronger in clinical samples, (4) dissociation is likely to play a role in the impact of insecure attachment on voice hearing and paranoia in clinical groups.

These findings indicate that disorganised attachment, which often results from early interpersonal trauma, predisposes dissociation in adulthood, which can in turn trigger voices and paranoia (see Figure 2). This is consistent with developmental (Liotti, 1992; 2009) and mechanistic models (Berry et al., 2017) of psychosis that highlight the role of dissociation in the association between disorganised attachment and psychosis. The finding that disorganised attachment is consistently associated with dissociation, and that dissociation is associated with both voices and paranoia, particularly in clinical samples, suggests that both disorganised attachment and dissociation are causally linked to psychosis.

**Figure 2 about here**

The studies examining candidate causal mechanisms are of particular interest. These indicate (but do not prove) that disorganised attachment may predispose dissociation which may increase voice hearing (McGonagle, 2017; Pearce et al. 2018; Williams, 2017). Additionally, the effect of attachment anxiety on paranoia may *decrease* as dissociation *increases* (Sitko, 2015). Our results support the suggestion that disorganised attachment leads to voice hearing via dissociation (Berry et al. 2017), and raise interesting questions about the (possibly protective) function of dissociation in the relationship between attachment insecurity and paranoia (cf. Longden et al., 2020).

The combination of (1) broadly consistent findings for the role of disorganised attachment on dissociation and psychotic experience, and (2) mixed results for the role of anxious and avoidant attachment across clinical and non-clinical studies, raises conceptual and measurement issues. *Is it possible that anxious and avoidant attachment patterns commonly co-exist in clinical groups with psychosis, and so current measures serve (for some people) as a proxy for disorganised or fearful patterns?* While disorganised and fearful attachment are often used interchangeably, these categories come from different classification systems and there is some disagreement regarding assumed equivalence (cf. Paetzold et al., 2015). Measurement issues have long been debated in the broader attachment literature and now need to be grappled with in our field to confirm whether current self-report scales accurately reflect conceptually different attachment patterns for people with psychosis.

Limitations and research implications

The heterogeneity of the research precluded a meta-analysis and indicates that we need a consensus on study designs and measures (particularly for attachment) to advance the field. While the quality assessment indicated a low risk of bias for all studies included, several remain unpublished and have therefore not benefitted from peer review. The reliance on cross-sectional designs, self-report measures (particularly for people who are avoidantly attached and may under-report problems; Gumley, et al, 2014; Strand, et al, 2015) and correlational analyses limit conclusions, notwithstanding the use of mediation and path analyses in some studies. Fully powered experimental and longitudinal clinical studies are needed to establish causal links. We now need to:

1. Examine anxious, avoidant and disorganised/fearful attachment patterns in people with psychosis to determine the extent to which these co-exist, and if so, which are the key factors predictive of dissociation and psychosis
2. Examine the relative contributions of anxious, avoidant and disorganised/fearful attachment to voices, paranoia and other psychosis experiences separately, and the mediating role of dissociation *while controlling for the effect of other attachment styles*
3. Agree working definitions of disorganised and fearful attachment, and confirm (and distinguish) validity of self-report measures for each[[2]](#footnote-3)
4. Run and replicate experimental studies that manipulate proposed causal mechanisms (using current measures of attachment and dissociation) to establish causal relationships
5. Draw on behavioural and observer measures as well as self-report questionnaires to strengthen study designs.

**Clinical implications**

Our findings indicate that insecure attachment is likely to be a vulnerability factor for psychosis, and that dissociation may mediate this effect and trigger psychotic experiences on a day-to-day basis. Importantly, this applies to paranoia (and possibly negative symptoms) as well as voices. As clinicians, we can assess these factors and incorporate in treatment planning where indicated (see Table 4).

**Table 4 about here**

We recommend that clinicians routinely ask about early and later adversity (Read & Gumley, 2008; Read et al., 2005; Read et al., 2008). Read et al. (2008) provide a list of principles for asking about childhood trauma and responding to people’s answers. These include asking everyone, asking at initial assessment (unless the person is in crisis), not seeking details, affirming it was helpful to tell, checking current emotional state, safety and support, and offering follow-up (Read et al., 2008). Attachment and dissociation should also be assessed through clinical interview and/or standardised measures. In the case of psychological assessment and therapy, relevant early experience, attachment style and dissociation can be named in the formulation and linked to psychosis symptoms to facilitate understanding. For people with insecure attachment, it is important to foster a sense of *felt security* through therapeutic interactions that are consistent, reliable and boundaried (cf. Mikulincer et al., 2013). Felt security can also be targeted directly with brief imagery tasks (e.g., Newman-Taylor et al., 2020; 2021; Pitfield et al., 2020; Sood & Newman-Taylor, 2020; Sood et al., 2021; 2022). In terms of treatment planning, clinicians should teach people to manage their dissociation, e.g., through psychoeducation and grounding skills (Newman-Taylor & Sambrook, 2013; Paulik et al., 2020a), and address trauma directly where early adversity and dissociation dominate the presentation (Hardy 2017; Keen et al., 2017; Paulik et al., 2020b; van den Berg et al., 2020). At a service level, care pathways that specify timescales for recommended interventions (e.g., Department of Health, 2014; Rathod et al., 2016) should incorporate assessment of adversity, attachment and dissociation, to ensure routine implementation.

Conclusion

This is the first theory-driven review of proposed causal links between attachment, dissociation and psychosis. The evidence is consistent with hypothesised causal pathways but raise important conceptual and measurement issues (as outlined in research implications, above). We now need replicable experimental and longitudinal studies to examine causality. Routine assessment and formulation of attachment style and dissociation are likely to improve clinical outcomes for people with psychosis, particularly for those with a history of early relational trauma.

**Practitioner points**

* Insecure attachment and dissociation may contribute to psychotic experiences for people who have experienced early trauma.
* We should routinely assess attachment and dissociation when working with people with psychosis.
* These processes can be named in individual formulations and targeted where relevant to the development and maintenance of distressing psychosis.
* We should be familiar with methods of managing dissociation when working with people with psychosis, and incorporate these into treatment plans.

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Figure 1: Paper selection flow chart

Records identified through search (PsychInfo 118; Web of Science 61; PubMed 49; CINAHL 12; Ethos; 14)

Total *N* = 254

Non-English and duplicate records removed (*n* = 70)

 jjjkljjkllkjlk

**Identification**

Records after non-English and duplicates removed (*n* = 184)

Books, book chapters, conference abstracts and systematic reviews removed

(*n* = 54)

Records excluded following title and abstract screening (*n* = 106)

Full text articles assess for eligibility (*n* = 24)

Record excluded at full text screening (*n* = 11)

**Screening**

**Eligibility**

Records included in main analysis (*n* = 13)

**Included**

Records after book chapters, conference abstracts and systematic reviews removed

(*n* = 130)

**Figure 2: Predisposing relationships between disorganised (fearful) attachment, dissociation and psychosis**

Table 1: Data extraction

| Authors (date), countryPublication status  | Study design | Sample characteristics | Measures of interest | Analyses | Key findings | Risk of bias |
| --- | --- | --- | --- | --- | --- | --- |
| Austin (2011), UKUnpublished | Cross sectional | Male offenders in secure hospital with psychosis diagnoses (*N* = 56; mean age = 40) | Childhood Trauma Questionnaire, Impact of Events Scale-Revised, Relationship Questionnaire, Dissociative Experiences Scale-II, Positive and Negative Syndrome Scale | Correlation and Kruskal-Wallis | Dissociation not associated with trauma, total positive symptoms, emotional/sexual abuse history, hallucinatory behaviour or delusions.Dissociation positively associated with delusions (*r*=0.33, *p*<0.01) and hallucinatory behaviour (*r*=0.35, *p*<0.01).No group differences in dissociation between participants with/without trauma. Secure attachment most endorsed style. | Low |
| Berry et al. (2018), UK Published | Cross- sectional | University staff and student sample (*N* = 123; mean age = 22, male = 36, female = 87) | Childhood Trauma Questionnaire, Relationship Styles Questionnaire, Dissociative Experiences Scale-II, Launay-Slade Hallucination Scale, Positive and Negative Affect Schedule | Correlation and multiple regression  | Avoidant attachment and dissociation predicted more AHs (*F* (6,106) = 15.20, *p* < 0.001; adjusted *R2* = 0.432). | Low |
| Degnan (2020), UKUnpublished | Cross sectional | Self-reported psychosis/treated for psychosis (N = 242; mean age = 33.17, male = 154, female = 74) | Brief Betrayal Trauma Survey, Psychosis Attachment Measure-Revised, Dissociative Experiences Scale-II, Self-Evaluation of Negative Symptoms, Community Assessment of Psychotic Experiences | Mediation  | Disorganized attachment and dissociation together mediated the childhood trauma–negative symptom association, explaining 40% of the variance. Disorganized attachment mediated the trauma–total negative symptoms(*β =* 0.06, *SE* = 0.03,95% CI = 0.02 to 0.13), trauma–experiential symptoms (0.05, *SE* = 0.02,95% CI = 0.02 to 0.12) and trauma–expressive symptoms (*β* = 0.06, *SE* =0.02,95% CI = 0.02 to 0.12) associations. Dissociation mediated the trauma–negative symptoms (*β =* 0.04, *SE* =0.02,95% CI = 0.01 to 0.10) and trauma–experiential symptoms (*β* = 0.04, *SE* =0.02,95% CI = 0.01 to 0.10) associations. | Low |
| McGonagle (2017), UKUnpublished | Cross- sectional | Self-reported psychosis diagnosis (*N* = 230, mean age = 36.95, male = 46, female = 184) | Brief Betrayal Trauma Survey, Dissociative Experiences Scale-II, Creative Experiences Scale, Community Assessment of Psychotic Experiences | Multiple regression and serial mediation  | Fearful attachment and dissociation mediated the trauma–AHs association (*b* = 0.01, 95% CI = 0.002, 0.03), accounting for 25.4% of the total effect, *PM* = .254. | Low |
| Mertens et al. (2021), SpainPublished | Cross-sectional | Undergraduate students (*N* = 89, mean age = 24.8, male = 34, female = 55) | Interview for Traumatic Events in Childhood, Relationship Questionnaire, Dissociative Experiences Scale-II, Schizotypal Personality Questionnaire, Structured Clinical Interview for DSM-4 Axis 2 Disorders | Correlation and parallel/ serial mediation  | Preoccupied (anxious) attachment and dissociation mediated effect of emotional abuse on self-reported paranoid traits (anxious attachment: *b* = 0.01, *SE* = 0.01, 95% CI =0.01, 0.04; dissociation: *b* = 0.04, *SE* = 0.02, 95% CI =0.01, 0.09) and interview based paranoid traits (anxious attachment: *b* = 0.04, *SE* = 0.02, 95% CI =0.01, 0.1; dissociation: *b* = 0.04, *SE* = 0.03, 95% CI =0.01, 0.13). Fearful attachment and dissociation mediated effect of emotional abuse on self-reported paranoid traits (fearful attachment: *b* = 0.02, *SE* = 0.01, 95% CI =0.003, 0.05; dissociation: *b* = 0.04, *SE* = 0.02, 95% CI =0.01, 0.09).Dissociation (*b* = 0.05, *SE* = 0.03, 95% CI =0.004, 0.14) mediated effect of emotional abuse on interview-based paranoid traits. | Low |
| Pearce et al. (2017), UKPublished | Cross- sectional | Self-reported help-seekers of medical support for distressing psychosis (*N* = 112; mean age = 40.2, male =81, female = 30) | Brief Betrayal Trauma Survey, Relationship Questionnaire, Dissociative Experiences Scale-Revised, Community Assessment of Psychotic Experiences | Correlation and mediation  | Dissociation mediated the childhood trauma–voice hearing association (*b* = 0.09, 95% CI = 0.03, 0.17). Dissociation (*b* = 17, 95% CI = 0.07, 0.30]) and fearful attachment (*b* = 0.05, 95% CI = 0.01, 0.12) mediated the childhood trauma–paranoia association. | Low |
| Pollard et al. (2020), UKPublished | Cross- sectional | Self-reported psychosis diagnosis (*N* = 144, mean age = not reported, male = 47, female = 94) | Brief Betrayal Trauma Survey, Psychosis Attachment Measure-Revised, Adult Disorganized Attachment, Relationship Questionnaire, Dissociative Experiences Scale-II, Community Assessment of Psychotic Experiences | Correlation  | Disorganized attachment (using PAM-R) correlated positively with frequency of positive psychosis symptoms (*r2* = 0.52, *p* = 0.01), distress (*r2* = 0.40, *p* = 0.01), dissociation (*r2* = 0.50, *p* = 0.01), fearful attachment (*r2* = 0.57, *p* = 0.01) and other measure of disorganized attachment (*r2*=0.60, *p*=0.01). | Low |
| Puckett et al. (2023), UKPublished | Experi-mental(impact of attachment on voice hearing and paranoia) | Analogue sample prone to AHs (*N* = 128, mean age = 24.5, male = 78, female = 47, non-binary = 2, prefer not say = 1) | Psychosis Attachment Measure-Revised, Dissociative Experiences Scale-II, Clinician Administered Dissociative Symptom Scale – 6-item, Launay-Slade Hallucination Scale, Continuum of Auditory Hallucinations (state), Brief Paranoia Checklist | ANOVA and mediation | Dissociation increased from time 1 to time 2 (*F* (1,126) = 71.53, p<.001, ηp2 = 0.39) in both secure (*t* (65) = −5.30, *p* = .001, *d* = 0.43) and disorganised (*t* (61) = −7.41, *p* = .001, *d* = 0.75) attachment conditions. Paranoia decreased in the secure (*t* (65) = 2.56, *p* = .01, *d* = 0.21) condition.Dissociation did not mediate the effect of attachment on AHs or paranoia.In exploratory analysis, trait dissociation fully mediated the effect of trait disorganised attachment on state AHs (*b* =0.27, SE=0.14, 95% CE=0.01, 0.37). | Low |
| Sitko (2015), UKUnpublished | Cross sectional | Participants with schizophrenia spectrum diagnoses (*N* = 80; mean age = 41.5, male = 60, female = 20) | Relationship Questionnaire, Dissociative Experiences Scale-II, Positive and Negative Syndrome Scale | Correlation, hierarchical regression and moderation  | Attachment style did not predict AHs.Anxious (*β* = .23, *SE* = .04, *p* = .03) and avoidant attachment (*β* = .36, *SE* = .04, *p* = .001) predicted paranoia. Dissociation moderated the anxious attachment–paranoia association accounting for 37% of the variance (*F* (5,70) = 7.46, *p* < .001).  | Low |
| Strachan et al. (2022), AustraliaPublished | Cross-sectional | University students (*N* = 528, mean age = 22.14, male = 127, female = 393, non-binary = 8)  | PTSD Diagnostic Scale for DSM-5 (adapted), State Adult Attachment Measure, Depression Anxiety and Stress Scales-21, Perth Emotion and Regulation Competency Inventory, Dissociative Experiences Measure Oxford, Multi-modality Unusual Perceptual Experiences Questionnaire | Path analysis | Total (combined) indirect effects from trauma to unusual perceptual experiences accounted for 37.1% of the variance. Insecure attachment, emotion regulation deficits, negative effect and dissociation mediated these effects (*β* = .08, 95% CI [0.05, 0.11], *p* < .001). | Low |
| Williams (2017), UKUnpublished | Cross- sectional | Participants with schizophrenia spectrum diagnoses (*N =* 50, mean age = 41.36, male = 34, female = 16) | Relationship Questionnaire, Dissociative Experiences Scale-II, Revised Launay-Slade Hallucination Subscale, Calgary Depression Scale for Schizophrenia | Mediation  | Dissociation mediated the fearful attachment–AHs association (*b* = 0.37 95% CI = 0.07, 0.68) – remained significant when age, gender and ethnicity covaried (*b* = 0.38, 95% CI= 0.06 to 0.71), but not when age, gender, ethnicity and depression covaried. | Low |
| de With et al. (2023), NetherlandsPublished | Cross-sectional | Participants with non-affective psychotic disorders (*N* = 184, mean age = 35.6, male = 112, female = 70, unknown=2) | Psychosis Attachment Measure (Dutch version), Self-Experience Lifetime Frequency Scale | Multiple regression | Anxious attachment was positively associated with disturbed self-awareness (*β* = 4.048, *p* = 0.023) and depersonalization (*β* = 2.975, *p* = 0.011).Positive symptoms were positively associated with disturbed self-awareness (*β* = 11.899, *p* < 0.001) and depersonalization (*β* = 4.659, *p* = 0.004). | Low |
| Wong (2016), UKUnpublished | Experi-mental (impact of stress on voice hearing) | General population (*N* = 130, median age = 20, male = 42, female = 88) | Childhood Trauma Questionnaire, Relationship Scales Questionnaire, Dissociative Experiences Scale-II, Launay-Slade Hallucination Scale Revised, Positive and Negative Affect Schedule, Voice Detection Task, Stress Manipulation Task  | ANCOVA and linear regression | No group differences on rating of false alarms post stress manipulation. False alarms at baseline and depersonalization predicted false alarms post stress manipulation.No association between childhood sexual abuse, hallucination proneness and attachment style. | Low |

*Note. r2*= R-squared, *b =* unstandardized regression coefficients*, β* = standardized regression coefficients*, SE =*standardized error*,* 95%CI= 95% confidence level, *PM =* proportion mediated

Table 2: Quality assessment of cross-sectional studies

| Study | Were inclusion criteria clearly defined? | Were study subjects and setting described in detail? | Was exposure (IV) measured in a valid and reliable way | Were objective, standard criteria used to measure the condition? | Were confounding factors identified? | Were strategies to deal with confounding factors stated? | Were outcomes measured in valid and reliable way? | Was appropriate statistical analysis used? | Risk of bias |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Austin (2011) | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Low |
| Berry et al. (2018) | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Low |
| Degnan (2020) | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Low |
| McGonagle (2017) | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Low |
| Mertens et al. (2021) | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Low |
| Pearce et al. (2017) | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Low |
| Pollard et al. (2020) | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Low |
| Sitko (2015)  | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes | Low |
| Strachan et al. (2023) | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Low |
| de With et al. (2022) | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Low |
| Williams (2017)  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Low |

Table 3: Quality assessment of experimental study

| Study | Are ‘cause’ and ‘effect’ clear? | Were participants included in comparisons similar? | Were participants included in comparisons receiving similar treatment/care, other than intervention of interest? | Was there a control group? | Were there multiple measurements of the outcome pre and post intervention/ exposure? | Was follow up complete and if not were differences between groups adequately described and analysed? | Were outcomes of participants included in comparisons measured in the same way? | Were outcomes measured in a reliable way? | Was appropriate statistical analysis used? | Risk of bias |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Puckett et al. (2023) | Yes | Yes | Yes | No | No | NA | Yes | Yes | Yes | Low |
| Wong (2016) | Yes | Yes | Yes | Yes | No | NA | Yes | Yes | Yes | Low |

Table 4: Clinical implications of the review

|  |  |
| --- | --- |
| 1. | Clinicians and MDTs: Routinely ask about early adversity |
| 2. | Psychologists and psychological therapists: Routinely assess attachment and dissociation, and name these processes in formulation diagrams |
| 3. | Psychologists and psychological therapists: When formulating, discuss the function of dissociation for the individual, which probably increases likelihood of voices, and possibly decreases paranoia (in the context of anxious attachment) |
| 4. | Clinicians and MDTs: Prioritise consistent and boundaried therapeutic relationships for people with insecure attachment and find ways to facilitate ‘felt security’ |
| 5. | Psychologists and psychological therapists: Prioritise means of managing dissociation where relevant, e.g., psychoeducation and grounding skills |
| 6. | Clinicians and MDTs: Consider trauma-focused approaches where early adversity and dissociation dominate the presentation |
| 7. | Service leads: Incorporate timelines for assessment of early adversity, attachment and dissociation, in care pathways for people with psychosis |
| 8. | Service leads: Establish internal reporting/routine audit systems that monitor these care pathways for community and in-patient multi-disciplinary teams  |

1. We include broadly accepted comparable terms in parentheses, where used by study authors, acknowledging some controversy in the literature regarding distinctions between categories drawn from different classification systems, (cf. Alexander, 1992; Mikulincer and Shaver, 2016; Paetzold et al., 2015). [↑](#footnote-ref-2)
2. Ideally, we would address (3) before (1) and (2) but expect it will take time for researchers in the field to come together with people with psychosis to agree on working definitions of disorganised and fearful attachment. [↑](#footnote-ref-3)