

Thesis submitted in partial fulfilment of the degree of Doctor of Clinical Psychology (DClinPsych)

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What is the role of dissociation in the relationship between developmental trauma and hallucinations across modalities? A critical systematic review.

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An examination of interpersonal childhood trauma in one route to voices proposed by the Cognitive-Attachment Model of Voice-Hearing.

Executive Summary 843 words

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Abstracts

SRL

What is the role of dissociation in the relationship between developmental trauma and hallucinations across modalities? A critical systematic review.

Previous empirical research has suggested that traumatic experiences in childhood may be linked to the development of hallucinations via dissociative processes. The current review aimed to assess the extent and quality of evidence supporting this mechanism to establish greater specificity in the understanding of how traumatic experiences confer risk of later psychopathology. A systematic search was undertaken using PsycINFO, Web of Science, PubMed, Embase, Medline, Global Index Medicus and KoreaMed. Titles and abstracts were screened, with eligible articles reviewed in full. Nineteen papers were identified, referring to twenty independent studies of varied methodologies, including both clinical and non-clinical populations globally. Although findings supported the role of dissociation as a mediator, with emerging evidence of specific pathways between trauma, dissociation and hallucinations across modalities, evidence is currently limited by cross-sectional methodologies and poor control of confounding variables. Implications for clinical practice and future research are discussed.

SIP

"They talk about how mental health may affect parenting, but they don't talk about how much your mental health might be affected *after you lose a child.*" Perspectives on forced adoption in a service for vulnerable families.

Legislative reform in the UK has prioritised the welfare and rights of children where there are safeguarding concerns. Parents' views have comparatively less weight and children may be placed in long-term alternative care without their birth parents' consent, a process colloquially referred to as 'forced adoption'. This service-improvement project aimed to explore parent and staff perspectives about processes related to forced adoption with a view to support a therapeutic service for vulnerable families consider how to address unmet needs. Eleven semi-structured interviews were undertaken with four parents and seven professionals. Five key themes were derived from birth parents' interviews related to experience of service processes, parents' investment in parenting, injustice, the impact of adoption and required support. Six key themes were derived from staff interviews related to service context, circumstances around adoption, competing role priorities, the observed impact for families, the impact of adoption and required support. Recommendations are made to the service based on birth parents and professionals' experiences and reflections, shown alongside responses from the Clinical Lead for the service. Implications for birth parents, professionals and services are discussed.

An examination of interpersonal childhood trauma in one route to voices proposed by the Cognitive-Attachment Model of Voice-Hearing.

Objectives: Although the relationship between childhood trauma and voice-hearing is well-established, theoretical mechanisms that may explain this relationship remain exploratory. This study aimed to examine the specificity of the role of interpersonal trauma compared to non-interpersonal trauma in relation to voice-hearing by comparing the experiences of individuals who hear voices with individuals who do not hear voices.

Methods: 114 individuals, comprised of 47 voice-hearers and 67 non-voice-hearers completed a series of questionnaires related to voice-hearing, childhood trauma, dissociation and attachment either online, via the telephone or face-to-face.

Results: After controlling for confounders and non-interpersonal trauma, interpersonal trauma was found to significantly predict voice-hearing, with greater exposure corresponding to an increased risk of hearing voices. Levels of dissociation and disorganised attachment were higher for voice-hearers and were implicated in a series of mediation models designed to examine relationships between interpersonal childhood trauma, dissociation and attachment.

Conclusions: There may be some utility in distinguishing between interpersonal and non-interpersonal childhood trauma in the context of vulnerability to voice-hearing. Findings are also suggestive of a complex mechanism of psychological processes underlying the relationship between childhood trauma and voice-hearing, though attributing causality should be approached tentatively in light of methodological limitations and issues of generalisability.

Systematic Review of the Literature

What is the role of dissociation in the relationship between developmental trauma and hallucinations across modalities? A critical systematic review.

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Proposed journal: This report is intended for submission to Clinical Psychology Review and has been written and formatted in accordance with this (Appendix A). This journal has been selected as it is recognised for publishing reviews of topics relevant to research and practice within clinical psychology. Reviews of similar topics have been published by this journal. Additional submission information is included in Appendix B.

Abstract

Previous empirical research has suggested that traumatic experiences in childhood may be linked to the development of hallucinations via dissociative processes. The current review aimed to assess the extent and quality of evidence supporting this mechanism to establish greater specificity in the understanding of how traumatic experiences confer risk of later psychopathology. A systematic search was undertaken using PsycINFO, Web of Science, PubMed, Embase, Medline, Global Index Medicus and KoreaMed. Titles and abstracts were screened, with eligible articles reviewed in full. Nineteen papers were identified, referring to twenty independent studies of varied methodologies, including both clinical and non-clinical populations globally. Although findings supported the role of dissociation as a mediator, with emerging evidence of specific pathways between trauma, dissociation and hallucinations across modalities, evidence is currently limited by cross-sectional methodologies and poor control of confounding variables. Implications for clinical practice and future research are discussed.

Introduction

Hallucinations are typically defined as a sensory perception, accompanied by a compelling sense of reality in the absence of an external stimulus (Waters et al., 2012). Such experiences can occur in five modalities, corresponding to each of the five senses: visual, auditory, tactile, olfactory and gustatory. Although hallucinations are typically associated with psychosis, with an estimated prevalence of between 60-80% for those meeting diagnostic criteria (Lim et al., 2016), they feature in the phenomenology of a number of psychiatric conditions (Toh et al., 2015; Alsawy et al., 2015; Slotema et al., 2018). Critically, an estimated 4-15% of the general population are also believed to experience hallucinations at one or more points in their lives (Johns & van Os, 2001; Tien, 1991) and researchers note cultural variation in the experiences and definitions of hallucinations (Larøi et al., 2014). That hallucinations are considered a feature of multiple psychiatric disorders is seen alongside continued debate as to precise aetiological mechanisms that could explain their manifestation.

Although hallucinations occur across sensory modalities, much of the theoretical literature is concerned with auditory hallucinations, and specifically voice-hearing. Current understanding of the aetiology of voice-hearing is limited, though research has largely focussed upon interactional mechanisms between biological, psychological and social/ environmental factors across the lifespan, with more interest seen in specific cognitive and relational phenomena in recent years (Sideli et al., 2020; Waters & Fernyhough, 2017; Bentall et al., 2014; de Leede-Smith & Barkus, 2013).

A theme amongst proposed mechanisms relates to the increased prevalence of trauma seen in individuals diagnosed with schizophrenia and psychosis (Grubaugh et al., 2011; Matheson et

al., 2013; Coughlan & Cannon, 2017). In the UK, approximately 20-30% of adults aged 18 to 74 are thought to have experienced at least one traumatic event by the age of 18 (Lewis et al., 2019; Office for National Statistics, 2020), typically referred to as 'developmental trauma'. Such events can refer to direct physical, sexual and emotional abuse, as well as neglect, loss, accidents and exposure to harmful environments, including intimate partner violence, war and natural disasters (Kinner & Borschmann, 2017). Developmental trauma has been linked to poorer psychological, neurobiological and social outcomes (Springer et al., 2003; Rosenberg et al., 2007; Hart & Rubia, 2012; Carr et al., 2013), with some evidence suggesting that such outcomes can persist into adulthood (Edwards et al., 2003; Dye, 2018).

Developmental trauma has been linked to hallucinations in various ways. It has been suggested that cognitive-affective processes can explain the relationship between trauma and auditory hallucinations (Hardy et al., 2016). Some researchers have also noted potential overlap in the phenomenology of hallucinations and post-traumatic intrusions (Steel et al., 2005) an idea supported by emerging research finding that the content of hallucinations may reflect features of traumatic experiences (Blom & Mangoenkarso, 2018). These ideas are aligned with cognitive models of PTSD, where disruptions to the contextual encoding and consolidation of trauma memories is suggested to underlie the persistence of intrusions (Ehlers & Clark, 2000). Within these models, the perceptual, emotional and sensory information associated with a traumatic event is thought to lack integration and remain fragmented, prone to involuntary retrieval and intrusive re-experiencing (Brewin & Burgess, 2014).

Theoretically, there could be some overlap between reduced contextual integration and dissociative processes (Steel, 2015). However, the role of dissociation has been criticised

(Steel, 2017), with some researchers suggesting that the concept lacks phenomenological distinction (Nijenhuis & van der Hart, 2011). Dissociation is defined as a detachment from reality based on 'a lack of normal integration of thoughts, feelings and experiences into the stream of consciousness and memory' (Bernstein & Putnam, 1986, pp. 727). It is thought to be comprised of distinct phenomena (Brown, 2006), though there remains some debate as to how to conceptualise and distinguish what are thought to be different 'types', including: 1) depersonalisation or derealisation, referring to the experience of feeling outside oneself and observing one's own thoughts, feelings and actions from a distance; 2) absorption, referring to the experience of becoming engaged with an external stimulus to the point of reduced self-awareness and 3) dissociative amnesia, referring to the experience of being unable to recall a period in one's life.

Preliminary evidence suggests that specific types of dissociation may be linked to positive symptoms of psychosis (Humpston et al., 2016), and levels of dissociation have been found to be elevated in individuals diagnosed with schizophrenia and a history of developmental trauma (Sar et al., 2010; Pilton et al., 2015). It has been suggested that dissociation may allow individuals who have been exposed to traumatic life events to psychologically detach from events that are too overwhelming (Nijenhuis & van der Hart, 2011) and in some theoretical discussions, this is suggested to contribute to the development and maintenance of auditory hallucinations via a network of psychological processes, alongside attachment (Berry et al., 2017), self-disturbance (Evans et al., 2015) and self-schema (Appiah-Kusi et al., 2017). Dissociation is also associated with voice-hearing (Pilton et al., 2015), with some researchers suggesting that voices can be conceptualised as dissociated components of the self (Berry et al., 2017; Corstens et al., 2012; Longden et al., 2012). Overall, these findings indicate potential utility in the examination of the role of dissociation in the relationship between

developmental trauma and hallucinations, including a more precise assessment of different elements of dissociation and hallucinations across modalities. Owing to continued debate as to phenomenological clarity (Černis et al., 2021), a broad assessment of how dissociation is conceptualised and measured may also improve the psychological understanding of its potential role in an aetiological mechanism underlying hallucinations.

Recent systematic reviews have highlighted dissociation as a mediator of the relationship between traumatic life experiences and specific symptoms of psychopathology (Sideli et al., 2020; Bloomfield et al., 2021), though their breadth has prevented a specific examination of the evidence for the role of dissociation in the relationship between developmental trauma and hallucinations across modalities. Furthermore, the use of 'mediation' as a search term in these reviews may have reduced the possibility of identifying studies which do not find an indirect effect for dissociation, effectively amplifying publication bias. Given the potential clinical implications for the psychological assessment and treatment of individuals presenting with hallucinations, it is also important that the quality of evidence for this potential mechanism is critically assessed. Therefore, this review is based on two research questions:

1. What is the evidence for dissociation as a mediator in the relationship between developmental trauma and hallucinations across modalities?
2. What is the quality of evidence investigating the role of dissociation in the relationship between developmental trauma and hallucinations across modalities?

Methods

This review was registered on PROSPERO (ref: CRD42022359986) and conducted using the preferred reporting items for systematic reviews and meta-analyses statement (PRISMA; Page et al., 2021).

Search strategy

Seven databases were selected to perform the search: PsycINFO, Web of Science, PubMed, Embase, Medline, Global Index Medicus and KoreaMed. These databases were selected to ensure a wide initial search of studies specific to the field of psychology as well as in allied fields, including papers from non-Western nations. The reference lists of 25 published reviews examining links between developmental trauma and hallucinations were also screened to identify studies not captured by the primary search. These reviews were either known to the authors or identified during the primary search. As there are no systematic search procedures to eliminate publication bias (Mueller et al., 2016), this will be a limitation of findings.

To ensure relevant search terms were not omitted, the search strategies of relevant published systematic reviews were consulted. Multiple terms of reference for 'developmental trauma', 'hallucinations' and 'dissociation' were employed, including wildcard operators to capture varying word endings and spelling where possible. In the current study, 'developmental trauma' referred to direct abuse, including physical, sexual and emotional abuse as well as neglect. Indirect trauma including parental separation/ death, institutional care and domestic violence were considered relevant based on empirical evidence implicating such experiences

in the development of dissociative and hallucinatory experiences (Coughlan & Cannon, 2017).

Each Boolean search string was combined with MeSH terms to produce the full search strategy (see Appendix C). Searches were completed in October 2022 and repeated in May 2023. Studies were limited by date in line with the publication of a widely used measure of dissociation, the Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986). Search terms were adapted to each database based on guidelines for text interpretation.

Eligibility criteria

Studies were considered eligible if they 1) referred to either developmental trauma, hallucinations or dissociation; 2) described primary quantitative research published in a peer-reviewed journal; 3) were based on the study of an adult population; 4) included formal measures of developmental trauma, hallucinations and dissociation and 5) employed statistical analysis in an attempt to suggest some level of explanation in the relationship between each of the aforementioned variables beyond simple association. Systematic reviews, books, commentaries, editorials, letters, posters and conference presentations were excluded. Records presenting only qualitative data were excluded, though case studies and studies employing mixed methods could be included provided quantitative data met inclusion criteria.

Formal measures pertaining specifically to the key variables were critical to the research questions and therefore studies reporting data related to broader constructs such as ‘lifetime trauma’, ‘self-disturbance’ and ‘positive symptoms’, ‘first rank symptoms’ or ‘Schneiderian

symptoms' were excluded where data for childhood trauma, hallucinations and dissociation were not delineated in analysis, respectively. Records making references to concepts such as 'magical thinking', 'fantasy proneness' and 'aberrant experiences' were not considered clearly related to any key concepts and thus excluded. Quantitative data based on formal measures was critical to an examination of evidence in line with the questions proposed by the review. That such evidence should be published in peer reviewed journals was considered important to the identification of good quality, credible research. Studies employing purely correlational analysis were excluded, as the associative nature of conclusions lack the explanatory capacity of more advanced statistical analysis, necessitated by the research questions. Between-groups comparisons were only included where analysis could be used to make inferences about the relationships between developmental trauma, dissociation and hallucinations. For example, studies measuring key variables with a view to examine similarities and differences in the phenomenology of diagnostic categories (Cavelti et al., 2018) were excluded where analysis could not allow inferences about relationships between variables.

Studies were also restricted to adult populations as the theoretical literature upon which the current review is based is principally concerned with outcomes experienced in adulthood. Outside of longitudinal research (included where data was available for participants both under and over 18 years of age), it is acknowledged that this necessitates retrospective reporting of developmental trauma, known to be linked to an *underestimation* of experiences of trauma (Fergusson et al., 2000).

Data analysis

All records from the database searches were imported into EndNote for de-duplication, after which the details relating to author(s), date, title and abstract for remaining records were tabulated. Records identified via handsearching were added individually. The screening and review process had three phases. During phase one, the titles and abstracts of all records were screened against eligibility criteria by one reviewer (JE), with a second reviewer (GR) independently screening 20% of records, randomly selected. Inter-rater reliability, assessed using Cohen's kappa, was high at $k = .95$. Critically, an inclusive approach was taken to phase one in which records were considered eligible where dissociation was not explicitly mentioned or where it was unclear whether developmental trauma or hallucinations had been delineated from broader measures (e.g. from 'lifetime trauma' or 'positive symptoms'). This was because of known problems related to selective reporting of significant results. During phase two, all remaining records were assessed for eligibility based on a full text reading by one reviewer (JE), with the second reviewer (GR) independently screening 25% of records, randomly selected ($k = .87$). The review process and corresponding number of papers included and excluded at each stage is illustrated diagrammatically in Figure 1.

During phase three, the quality of all records was assessed using the Standard Quality Assessment Criteria for Evaluating Primary research Papers from a Variety of Fields (Kmet & Lee, 2004; see Appendix D for criteria), selected owing to the expected heterogeneity of methodologies employed by relevant studies. Each paper was screened for quality by one reviewer (JE), with the second reviewer (GR) independently screening 30% of papers in the original search, randomly selected ($k = .82$). Studies were scored out of 22, with scores of

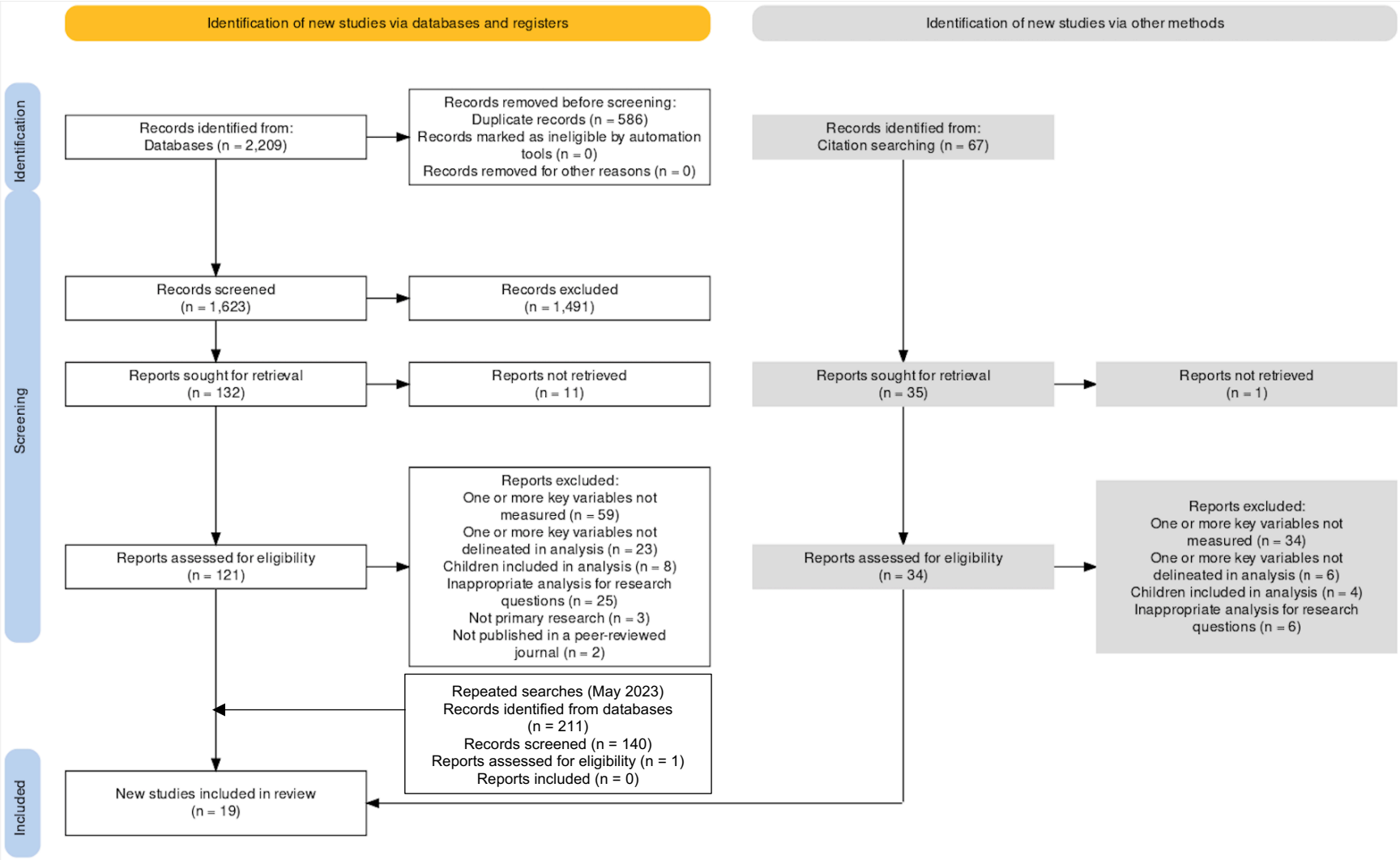
<50%, 50-69%, 70-80% and >80% corresponding to poor, adequate, good and strong quality, respectively.

Results

The review process yielded 19 papers, relating to 20 independent studies – see Figure 1 for the PRISMA flowchart. For clarity, studies identified in the review will hereafter be referred to in the context of the total number of 20 independent studies included as opposed to the number of papers.

Of all included studies, the approach to the measurement and analysis of developmental trauma, hallucinations and dissociation varied considerably and therefore, a meta-analysis was not considered appropriate. Results are therefore synthesised narratively, with reference to quality of evidence.

Figure 1 PRISMA Flowchart*



*created using PRISMA Flowchart Shiny App (Haddaway et al., 2022), with additional element for repeat searches

Study characteristics

Of the studies included, 17 originated from Western nations, including six studies based in the UK (Berry et al., 2018; Cole et al., 2016; Longden et al., 2016; Offen et al., 2003; Pearce et al., 2017; Varese et al., 2012), three studies based in the USA (Gómez & Freyd, 2017; Lewis-Fernández et al., 2010; Muenzenmaier et al., 2015), four studies based in Spain (Bellido-Zanin et al., 2018; Perona-Garcelán et al., 2010; Perona-Garcelán et al., 2012; Perona-Garcelán et al., 2014), two studies based in France (Bortolon et al., 2017; Bortolon & Raffard, 2018), one study based in New Zealand and Australia (Nesbit et al., 2022) and one study based in Northern Ireland and Australia (Dorahy et al., 2009). Three independent studies were based in East Asia (Fung et al., 2020; Wu et al., 2022), though one recruited worldwide (Fung et al. 2020).

Approximately 3356 participants were included in the review, including at least 1055 participants recruited from clinical services, such as inpatient facilities, community clinics and/ or day centres. Of the 11 studies that recruited clinical populations, two studies relied upon self-reported diagnoses, reported via online surveys. The remaining participants were recruited from the general population, including at least 1300 participants from universities. Of the seven studies that recruited a general population, two studies excluded participants based on current or historic mental health difficulties or treatment; two studies enquired as to current symptoms of anxiety and depression and three studies did not report an attempt to elucidate existing mental health difficulties in their samples. Two studies recruited both clinical and general populations.

The quality of demographic information varied amongst the studies, though the age and gender of the sample were consistently reported. Participants' age ranged from 18 to 71,

though one study explicitly excluded older adults aged 60 and above due to concerns about the presence of hallucinations in neurogenerative disease (Bortolon & Raffard, 2018). The mean age of the samples ranged from 19.81 years (Lewis-Fernandez et al., 2010), to 58.26 years (Wu et al., 2022). Based on the data reported, it is estimated that approximately 2344 women and 985 men participated, though one paper acknowledged that gender was not recorded for two participants and another paper denoted a participant's gender via the 'other' category. Seven papers described the ethnicity of their sample; of a total of 903 participants, 494 were White, 96 were Asian, 102 were African American, 43 were non-White Hispanic, 31 were Other White, 5 were Afro-Caribbean, 6 were Native American, American Indian or Pacific Islander, 2 were mixed race, 46 were denoted under the category of 'other' and 78 participants' ethnicities were not explicitly reported. Few studies reported additional socio-demographic characteristics, though some studies of clinical populations acknowledged high numbers of individuals with a high-school education or less, being single, from low-income households and of immigrant status.

All studies used a combination of questionnaires to assess developmental trauma, hallucinations and dissociation. Seven studies used online methods, where participants accessed questionnaires via a web link. Seven studies included an interview where all or selected questionnaires were administered, some of which included psychiatric assessment. Two studies required participants to attend a testing session where they completed questionnaires independently. Two studies gave participants a choice as to whether they preferred to attend a testing session or completed the study at home. Four studies reported providing participants with questionnaires to complete, with limited further information as to how or where this occurred.

Researchers took varying approaches to the measurement of developmental trauma, hallucinations and dissociation, with some studies employing multiple measures of one or more variables. All the measures used are shown in Table 1, alongside a brief description of psychometric characteristics and the studies that employed them. Full study characteristics are shown in Table 2.

Table 1 Measures of developmental trauma, hallucinations and dissociation used in included studies (terms that may be unfamiliar to readers are highlighted in bold and defined in the glossary in the footnote)

Developmental Trauma		
Measure	**Description**	**Studies**
Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003)	A 28-item measure comprised of subscales for emotional abuse, physical abuse, sexual abuse, emotional neglect and physical neglect. Participants rate each item on a five-point Likert scale from 1 (never true) to 5 (very often true). The French version (Paquette et al., 2004) includes 70 items, rated on a Likert scale from 1 (not true) to 5 (very often true).	Berry et al. (2018) Bortolon & Raffard (2018) Bortolon et al. (2017) Dorahy et al. (2009) Nesbit et al. (2022)
The Brief Betrayal Trauma Survey (BBTS; Goldberg & Freyd, 2006)	A 12-item measure designed to assess the presence of 12 different types of traumatic experiences of interpersonal and non-interpersonal nature. Participants indicate the presence and frequency of each experience using 'never', 'one or two times' or 'more than two times'. Experiences are rated before and after age 18. Items can be categorised into **high, medium and low betrayal trauma**. No differences in psychometrics are reported for the Chinese version.	Fung et al. (2020) Gomez & Freyd (2017) – one item used relating to sexual abuse Pearce et al. (2017) – nine items used relating to interpersonal trauma Wu et al. (2022)
The Trauma Questionnaire (TQ; Davidson et al., 1990)	An 18-item inventory describing different types of traumatic experiences. Participants are required to identify the traumatic experiences they have had and the age at which they occurred. No differences in psychometrics are reported for the Spanish version.	Perona-Garcelán et al. (2010) Perona-Garcelán et al. (2012) Perona-Garcelán et al. (2014)
The Child Abuse and Trauma Scale (CATS; Sanders & Becker-Launsen, 1995)	A 38-item measure designed to assess perceived severity of maltreatment in childhood, as well as providing subscale scores for sexual abuse, punishment and physical abuse, neglect and degree of negativity. Participants are asked to rate each statement on a five-point Likert scale from 0 (never) to 4 (always).	Cole et al. (2016) Varese et al. (2012)
The Early Life Experiences Scale (ELES; Gilbert et al., 2003)	A 15-item measure designed to assess threat, submissiveness and invalidation in childhood. Participants are asked to rate each item on a five-point Likert Scale from 1 (completely untrue) to 5 (very true).	Bellido-Zanin et al. (2018)

The Life Stressor Checklist-Revised (LSC; Wolfe et al., 1996)	A 30-item inventory yielding a present/ absent score for a range of adversities, alongside a rating of distress at the time of the event, current distress and data pertaining to the age and duration of exposure.	Longden et al. (2016)
The Brief Physical and Sexual Abuse Questionnaire (Marshall et al., 1998)	A measure designed to assess interpersonal trauma before and after age 16. Six items relating to physical abuse, sexual abuse and environmental stress were used, with responses dichotomised based on presence/ absence.	Lewis-Fernández et al. (2010)
The Research Interview of Early Loss Events (Burton, 1991)	One question relating to childhood sexual abuse was derived from the interview and used to determine the presence of sexual abuse.	Offen et al. (2003)
The History of Physical and Sexual Abuse Questionnaire (Meyer et al., 1996)	Items related to individual abusive experiences and stressful experiences in the family environment were derived from and summed to create a composite score for developmental trauma. Answers were dichotomised into presence and absence of trauma.	Muenzenmaier et al. (2015)
The Sexual Experiences Survey (Koss & Oros, 1982)	A measure designed to assess sexual victimisation and aggression, modified into a 7-item questionnaire to assess high betrayal child sexual abuse. Items are rated on a five-point Likert scale from 1 (never) to 5 (almost always).	Gomez & Freyd (2017)
Hallucinations		
Measure	**Description**	**Studies**
Launay-Slade Hallucination Scale-Revised (LSHS-R; Bentall & Slade, 1985)	A 12-item measure designed to assess vivid mental events and **proneness to hallucinations** in the general population. Participants rate the applicability of items using a five-point Likert scale from 0 (certainly does not apply to me) to 4 (certainly applies to me). No differences in psychometrics are reported for the Spanish version.	Bellido-Zanin et al. (2018) Berry et al. (2018) Bortolon & Raffard (2018) Bortolon et al. (2017) Cole et al. (2016) Perona-Garcelán et al. (2014) Varese et al. (2012)

The Positive and Negative Symptom Scale (PANSS; Kay et al., 1988)	A semi-structured interview designed to assess the presence and severity of positive and negative psychotic symptoms. Items are rated on a seven-point Likert scale from 1 (absent) to 7 (extreme). No differences in psychometrics are reported for the Spanish version.	Perona-Garcelán et al. (2010) – items relating to hallucinations and delusions Perona-Garcelán et al. (2012) – items relating to hallucinations and delusions Varese et al. (2012)
The Mental Health Research Institute Unusual Perceptions Schedule (MUPS; Carter et al., 1995)	A 365-item measure designed to assess the experience of auditory hallucinations across seven modules: physical characteristics, personal characteristics, relationship/ emotion, form/ content, cognitive processes, perceptions of experience and psychosocial issues. Items are rated on a five-point Likert scale from 1 (never) to 5 (always).	Dorahy et al. (2009)
The Dissociative Disorders Interview Schedule (DDIS; Ross et al., 1989)	A structured interview comprised of 132 items used to assess features of Dissociative Identity Disorder. Items are assessed via a 'yes', 'no' or 'unsure' format. No differences in psychometrics are reported for the Chinese version.	Fung et al. (2020) – single item related to voice-hearing used to assess hallucinations Wu et al. (2022)
The Composite International Diagnostic Interview (World Health Organisation, 1990)	The Beliefs and Experiences Module comprising three items assessing tactile, visual and auditory hallucinations. Items were rated on a five-point Likert scale from 1 (never) to 5 (almost always).	Gomez & Freyd (2017)
The Altered Perceptions Questionnaire **(**Lewis-Fernández et al., 2010)	A culturally-determined measure under development designed to assess Hispanic-Caribbean experiences associated with spiritual practice and unusual perceptions. Three items relates to auditory, visual and tactile hallucinations were used. Participants rate the percentage of time each experience happens to them from 0% (never) to 100% (always).	Lewis-Fernández et al. (2010)
The Structured Clinical Interview for DSM-IV (SCID; First & Gibbon, 2004)	A structured interview used to assess features of psychiatric disorders.	Muenzenmaier et al. (2015) – used to create two scales for hallucinations and delusions assessing lifetime experiences of symptoms.

The Psychotic Symptom Rating Scales (PSYRATS; Haddock et al., 1999)	A 17-item structured interview used to assess features of hallucinations and delusions. Participants are asked to rate each item on a five-point Likert scale from 0 to 4, with specific descriptors provided for each rating. No differences in psychometrics are reported for the Chinese version.	Wu et al. (2022) Nesbit et al. (2022) – 11 items were used to assess hallucination factors such as frequency, duration and distress.
The Community Assessment of Psychotic Experiences (Stefanis et al., 2002)	A 42-item measure used to assess features of psychotic experiences. Participants indicate the frequency of each item by selecting 'never', 'sometimes', 'often' or 'nearly always'.	Pearce et al. (2017) – subscale items relating to hearing voices (two items) and paranoia (five items) were used.
The Beliefs about Voices Questionnaire (BAVQ; (Chadwick & Birchwood, 1995)	A 30-item self-report questionnaire designed to assess an individuals' beliefs, feelings and behaviour around their experience of hearing voices. Four subscales provide an indication of the malevolence, benevolence and power of the voices and individual's resistance and engagement. Items are rated on a four-point Likert scale from 0 (disagree) to 3 (strongly agree).	Offen et al. (2003)
Self-report questionnaire (Longden et al., 2016)	A questionnaire designed to assess the presence or absence of hallucinations. Those who endorsed them were asked to describe their experience and a screening of responses was undertaken by researchers to establish the modality of hallucinations based on specified criteria.	Longden et al. (2016)
Prevalence of auditory hallucinations (Nesbit et al., 2022)	A single-item measure was designed to specifically assess frequency of auditory hallucinations: "Have you ever heard voices that you suspect others don't hear or report hearing?", rated on a five-point scale from 1 (never) to 5 (always).	Nesbit et al. (2022)
Dissociation		
Measure	**Description**	**Studies**
The Dissociative Experiences Scale (DES-II, Bernstein & Putnam, 1993) (updated by Dalenberg & Carlson, 2010)	A 28-item measure designed to assess **dissociative amnesia, absorption and depersonalisation/ derealisation**. Participants rate the applicability of items using a yes/ no format together with an estimate of the percentage of time spent having this experience from 0% (never) to 100% (always). The updated version includes a six-point Likert scale ranging from 0 (never) to 5 (at least once a week).	Bellido-Zanin et al. (2018) Berry et al. (2018)* Bortolon & Raffard (2018) Bortolon et al. (2017) Cole et al. (2016) Lewis-Fernández et al. (2010) Longden et al. (2016)

	The French version (Darves-Bornoz et al., 1999) is comprised of 11 boxes and participants are asked to tick from 'much less than others' to 'much more than others'. Items relate to two subscales: **automatic pilot and defence.** No differences in psychometrics are reported for the Chinese or Spanish versions. Item 27 of the scale refers to the experience of hearing voices; where this was excluded studies have been denoted (*).	Nesbit et al. (2022)* Pearce et al. (2017)* – used updated version (2010) Perona-Garcelán et al. (2010) Perona-Garcelán et al. (2012)* Offen et al. (2003) Varese et al. (2012)*
The Dissociative Experiences Scale-Taxon (DES-T; Waller et al., 1996)	An 8-item measure derived from the original DES-II comprised of eight items pertaining to pathological dissociation based on taxometric analysis of the DES-II in clinical and general population samples. The item pertaining to voice hearing was excluded in some studies, denoted (*). No differences in psychometrics are reported for the Chinese version.	Dorahy et al. (2009) – used to diagnose DID Fung et al. (2020)* Muenzenmaier et al., (2015) Wu et al. (2022)
The Curious Experiences Survey (CES; Goldberg, 1999)	A 31-item questionnaire designed to assess dissociative experiences. Items are rated on a five-point Likert scale from 1 (never) to 5 (almost always).	Gomez & Freyd (2017)
Tellegen Absorption Scale (TAS; (Tellegen & Atkinson, 1981)	A 34-item self-report questionnaire assessing the tendency to become intensely involved in experiences, with heightened reactions, emotions, and sensations to both internal and external stimuli. Each item was measured on a 5-point Likert scale in which from 0 (never) and 4 (always). No differences in psychometrics are reported for the Spanish version.	Perona-Garcelán et al. (2014)
Cambridge Depersonalization Scale (CDS; (Sierra & Berrios, 2000)	An abbreviated 11-item version, allowing for a descriptive evaluation of depersonalisation, was used. Each item includes two Likert- scales. The first measures the frequency of the experience, from 0 (never) to 4 (always); the second measures the duration of the depersonalization experience, from 0 (a few seconds) to 6 (over a week). No differences in psychometrics are reported for the Spanish version.	Perona-Garcelán et al. (2014)

The Dissociative Identity Disorder Section of the Dissociative Disorders Interview Schedule (DDIS; Ross et al., 1989)	This module contain four semi-structured interview questions matching DSM criteria for DID, assessed via a 'yes', 'no' or 'unsure' format.	Dorahy et al. (2009) Nesbit et al. (2022)

Definitions:
Betrayal Trauma: refers to harm perpetrated by those on which an individual depends for survival; experiences higher in betrayal are characterised by a violation of trust
Hallucination Proneness: refers to a predisposition to abnormalities in perceptual experiences and beliefs, characterised by vivid daydreams, thoughts, imagery, including visual and auditory hallucinations
Dissociative Amnesia: refers to the experience of being unable to recall a period in one's life
Depersonalisation/ derealisation: refers to the experience of feeling outside oneself and observing one's own thoughts, feelings and actions from a distance
Absorption: refers to the experience of becoming engaged with an external stimulus to the point of reduced self-awareness
Automatic pilot dissociation: is associated with varying cognitive failures, particularly in terms of memory and attention
Defensive dissociation: refers to a detachment from reality in an attempt to avoid cognitions related to traumatic experiences

Table 2 Study characteristics

Study	Aims	Design and method	Sample	Measures	Main findings	Quality
Bellido-Zanin et al. (2018)* Spain	1. To study the relationship between the memory of threatening experiences and submissiveness in childhood and proneness to hallucinations in adulthood in a healthy population. 2. To study the relationship between childhood memories of threatening experiences and submissiveness and other experiences in the sphere of psychosis, such as ideas of reference.	Cross-sectional design: participants were assigned a code and sent a link to questions related to sociodemographic, medical/ psychiatric history, use of medication and the questionnaires.	General population: 472 students; 346 female, 126 male. Mean age=25.5years (SD=9.83). Inclusion criteria: Aged 18 years, Spanish fluency Exclusion criteria: In current treatment for mental health and/ or taking psychiatric medication Students were recruited from Universities of Seville and Cadiz, Spain. Prospective participants were sent an email invitation to participate in exchange for course credit.	Early Life Experiences Scale (ELES; Gilbert et al., 2003) *Spanish version (de León-Palacios et al., 2019)* Launay-Slade Hallucination Scale-revised (LSHS; Bentall & Slade, 1985) *Spanish version (Fonseca-Pedero et al., 2010)* Dissociative Experiences Scale II (DES-II; Calson & Putnam, 1993) *Spanish version (Icaran et al., 1996)* Referential Thinking Scale (RTS; (Lenzenweger et al., 1997) *Spanish version (Senin-Calderon et al., 2010)*	1. Stronger childhood memories of threat and submissiveness were related to hallucination proneness and dissociation, including all three subscales: depersonalisation, absorption and dissociative amnesia. 2. The relationship between early life experiences and hallucination proneness was fully mediated by dissociation. 3. Multiple mediation analysis with the DES-II subscales showed that absorption and depersonalisation fully mediated the relationship between early life experiences and hallucination proneness. Dissociative amnesia was not a significant mediator.	Good
Berry et al. (2018) UK	1. To investigate the relative contribution of childhood adversity, dissociation and adult attachment in explaining hallucination	Cross-sectional: participants responded to an online pre-screen to measure demographics and inclusion/	General population: 123 staff and students; 87 female, 36 male. Mean age=22 years (SD=5.10). 47.9% White British, 13% Other White, 30.9% Asian, 8.1% 'Other'.	Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003) Launay-Slade Hallucination Scale-	1. Childhood adversity was positively associated with hallucination proneness. 2. There were no significant associations between either sexual or physical abuse and hallucination proneness.	Strong

	proneness in a non-clinical sample.	exclusion criteria. Those eligible were invited to attend a face-to-face testing session where they completed each questionnaire.	Inclusion criteria: Aged 18 years, English fluency, normal/ corrected vision Exclusion criteria: Current or previous treatment by secondary mental health services, hearing impairment Staff and students were recruited by posters on campus and through a course credit system.	revised (LSHS; Bentall & Slade, 1985) Dissociative Experiences Scale II (DES-II; Calson & Putnnam, 1993) *Analysis ran with and without item 27 (hearing voices); findings were based on the full measure* Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994) Positive and Negative Affect Schedule (PANAS; Watson et al., 1988)	3. Higher dissociation was positively associated with hallucination proneness, including DES-II subscales. 4. Only the DES-II total score and attachment avoidance were significant independent predictors of hallucination proneness. 5. CTQ score was not an independent predictor of hallucinations.	
Bortolon & Raffard (2018)* France	1. To explore the mediating effect of dissociation on the relationship between childhood trauma and seeing visions.	Cross-sectional: participants accessed the survey through a weblink and provided information related to socio-demographics and their psychiatric history before completing questionnaire measures.	General population: 403 participants; 331 women, 94 men. Mean age =33.24 years (SD=11.12). Participants over 60 years old were excluded due to higher risk of neurodegenerative disease that may induce visual hallucinations. 55 participants reported taking medication. 157 participants reported anxiety symptoms, 82 participants reported depressive symptoms.	Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003) *French version used (Paquette et al., 2004)* Launay-Slade Hallucination Scale-revised (LSHS; Bentall & Slade, 1985) – only subscales pertaining to visual and auditory hallucinations were used. *French version used (Larøi et al., 2005)*	*Seeing visions* 1. After controlling for demographics and psychopathology, childhood trauma and hearing voices were significant predictors of seeing visions. 2. When defensive dissociation was entered into the model, childhood trauma no longer predicted seeing visions indicating mediation. *Hearing voices* 1. After controlling for demographics and psychopathology, childhood	Strong

			Participants were recruited online via social media (Facebook and Twitter).	Dissociative Experiences Scale (DES-II; Calson & Putnnam, 1993) *French version used (Darves-Bornoz et al., 1999) divided into two subscales: automatic-pilot dissociation and defensive dissociation.*	trauma and seeing visions were significant predictors of hearing voices. 2. When defensive dissociation was entered into the model, childhood trauma was no longer a significant predictor of hearing voices, indicating mediation.	
Bortolon et al. (2017)* France	1. To explore the associations between several key variables that have been shown to partially mediate the link between specific trauma exposure and auditory hallucinations.	Cross-sectional: participants were provided with a link to access questions about socio-demographics and their psychiatric history before completing questionnaire measures.	General population: 425 participants; 363 women, 62 men. Mean age=36.23 years (SD=15.2). 57 participants reported taking mediation, 87 participants reported depressive symptoms and 170 participants reported anxiety symptoms. Participants were recruited online via social media (Facebook and Twitter)	Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003) *French version (Paquette, 2004)* Launay-Slade Hallucination Scale-revised (LSHS; Bentall & Slade, 1985) – only subscales pertaining to visual and auditory hallucinations were used. *French version (Larøi & Van der Linden, 2005)* Dissociative Experiences Scale (DES-II; Calson & Putnnam, 1993) *French version (Darves-Bornoz et al. 1999).* The Young Schema Questionnaire- short form (SQ-SF; (Cottraux & Black, 2006)). *French version (Lachenal-Chevallet et al., 2006)*	1. Only physical, sexual and emotional abuse indirectly impacted auditory hallucinations. 2. After controlling for demographics and psychopathology, dissociation significantly mediated the relationship between physical abuse and hallucination proneness. 3. Dissociation mediated the relationship between the schemas of subjugation and vulnerability (linked to both sexual and emotional abuse) and hallucination proneness. Only emotional abuse was not linked to dissociation.	Strong

Cole et al. (2016)* UK	1. To assess whether dissociation, and specifically depersonalisation, plays a mediating role in the relationship between childhood maltreatment and both hallucination proneness and delusional ideation.	Cross-sectional: participants completed questionnaires online and were offered a mood repair task to alleviate any distress following completion of the study.	General population: 200 undergraduate students, 165 females, 34 males, 1 person identifying as 'other'. Mean age=19.96 (SD=2.18). 76.5% of the sample identified as British or any other white background. 4.5% identified as Indian.	Child Abuse and Trauma Scale (CATS, Sander & Becker-Launsen, 1995). Launay-Slade Hallucination Scale-revised (LSHS; Bentall & Slade, 1985) Dissociative Experiences Scale (DES-II; Calson & Putnam, 1993) Cambridge Depersonalisation Scale (CDS; Sieera & Berrios, 2000) Peters et al. Delusions Inventory (PDI; Peters et al., 2016)	1. There was a significant direct effect of childhood maltreatment on hallucination proneness and on delusional ideation. 2. The total indirect effect of childhood maltreatment via dissociation was significant for both hallucination proneness and delusional ideation. 3. Only absorption mediated the relationship between childhood maltreatment and hallucination proneness whereas depersonalisation and dissociative amnesia did not. 4. Absorption and dissociative amnesia mediated the relationship between childhood maltreatment and delusional ideation. Depersonalisation did not.	Strong
Dorahy et al. (2009) Northern Ireland and Australia	1. To examine whether there are phenomenological differences in the voice hearing experiences of those with (1) schizophrenia with no childhood abuse history, (2) schizophrenia with a childhood abuse history and (3) Dissociative Identity disorder (DID).	Cross-sectional: clinical participants had been assessed by an experienced Consultant Psychiatrist using the DSM-IV-TR criteria. Those who reported having persistent auditory hallucinations (both when unwell and when stabilised), were	Clinical population: 65 participants, either inpatients or outpatients using psychiatric services in Northern Ireland or Australia. 36 females, 27 males assessed. Gender was not recorded for 2 participants. Mean age = 41.61 (SD=11.12). Three groups: Schizophrenia with maltreatment (n=16);	Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003). Maltreatment defined as above 'low trauma' on CTQ abuse and neglect subscales. The Mental Health Research Institute Unusual Perceptions Schedule (MUPS; Carter et al., 1995)	1. Individuals in the DID group reported significantly higher CTQ scores and DES-T scores compared to individuals in the schizophrenia with maltreatment group, who in turn reported high scores on both measures compared to the schizophrenia without maltreatment group. 2. Compared to those without a childhood trauma history, for people with	Adequate

		invited to take part in a structured interview with a researcher where questionnaires were completed.	Schizophrenia without maltreatment (n=18) and DID (n=29).	Dissociative Experiences Scale Taxon (DES-T; Waller et al., 1996). The Dissociative Identity Disorder Section of the Dissociative Disorders Interview Schedule (DDIS; Ross, 1997, Ross et al., 1989)	schizophrenia with a childhood trauma history there is an increase in the odds of people hearing more than two voices, being told what do by the voices, feeling controlled by the voices, that the voice content relates to someone influential and that voices replay past memories. There is a further increase in the odds of the experiences for those with DID compared to those with schizophrenia and a childhood trauma history. 3. Across groups, the combination of childhood maltreatment and dissociation increased the odds of hearing a voice before the age of 18.	
Fung et al. (2020) (two studies) Hong Kong	**2.** To examine the symptom correlates of hearing voices in. English-speaking and Chinese-speaking samples of people seeking treatment for dissociation.	Cross-sectional: participants completed an online survey including all questionnaires.	Clinical population (self-reported): *Study 1 (English-speaking):* 83 participants, 75 female, 8 male. Mean age= 40.96, (SD=10.78). Clinical diagnosis of PTSD (69.9%), BPD (15.7%), Dissociative Disorder (54.2%), including DID (31.3%) reported via online channels. Recruited online from the US, UK, Canada, Hong Kong and Australia.	The Brief Betrayal Trauma Survey (Goldberg & Freyd, 2006; BBTS) *Chinese version (Chiu et al., 2010)* Self-Report Dissociative Disorders Interview Schedule (SR-DDIS) *Chinese version(Fung et al., 2018)* Dissociative Experiences Scale Taxon (DES-T; Waller et al., 1996)	1. In the English-speaking sample, compared with those who did not hear voices, the experience of hearing voices was closely associated with dissociative phenomena including: noticing that objects are missing, objects are present that cannot be accounted for, having a different handwriting style, strangers knowing the person, being told of unremembered events, blank spells, coming out of blank spells in a	Good

	2. To examine the correlates of depersonalisation (defined as feeling unreal).		*Study 2 (Chinese-speaking):* 82 participants, 73 female, 9 male. Mean age= 28.77 (SD = 7.61). 35.4% reported clinical diagnosis of PTSD, 19.5% reported BPD, 31.7% reported Dissociative Disorder, including 18.3% reporting DID via online and offline channels. These participants were offered a 12-session dissociation-focussed psycho-education programme. Recruited from Hong Kong (51.2%) and Taiwan (43.9%), with some others from Malaysia and Australia.	*Chinese version (Fung et al., 2018).* *Item 27 removed to create an additional measure: the DES-TR* PTSD Checklist for DSM-5 (PCL-5; Weathers et al., 2013; Blevins et al., 2015) *Chinese version (Fung et al., 2019)* PHQ-9 (Kroenke & Spitzer et al., 2002). *Chinese version (Yeung et al., 2008)*	strange place, flashbacks, referring to oneself as 'we' or 'us', another person existing inside, the person inside having a different name and another person taking control. Amnesia for childhood was not associated. 2. In the Chinese-speaking sample, compared with those who did not hear voices, the experience of hearing voices was closely associated with noticing objects that are missing, being told of unremembered events, blank spells, referring to oneself as 'we' or 'us', another person existing inside, the person inside having a different name and another person taking control. 3. In both English and Chinese-speaking samples, compared to participants who felt unreal but did not hear voices and participants with neither experience, participants who heard voices had significantly higher scores on the DES-T, DES-TR, PCL-5, DDIS-BPD and reported significantly more high betrayal traumas than participants with neither experience. English-

					speaking participants who heard voices also had higher DES-T scores and reported more childhood low-betrayal traumas than those who only felt unreal. Chinese-speaking participants who heard voices also reported more high-betrayal adulthood traumas.	
Gomez & Freyd (2017)* USA	1. To use betrayal trauma theory (Freyd, 1996) as the basis for testing a new model of trauma, dissociation and hallucinations in a relatively high-functioning young adult sample.	Cross-sectional: participants were invited to take part in a 60-minute online study at a location of their own choosing with no knowledge of the content at the time of signing up.	General population: 192 students from Human Subjects Pool at large public university in USA. Mean age of the pool = 19.81, SD = 2.61. Participants were recruited via course-credit system.	The Sexual Experiences Survey (SES; Koss & Oros, 1982) The Brief Betrayal Trauma Survey–Modified (Goldberg & Freyd, 2006); modified to be a 1- item assessment of high betrayal sexual abuse. The Composite International Diagnostic Interview: "Beliefs and Experiences Module" (World Health Organization, 1990) The Curious Experiences Survey (CES; Goldberg, 1999)	1. Dissociation mediated the relationship between childhood high betrayal sexual abuse and hallucinations.	Adequate
Lewis- Fernández et al. (2010) USA	1. To clarify the relationships among four cultural idioms of distress (being nervous since childhood, currently	Cross-sectional: participants completed a demographic questionnaire before participating	Clinical population: 230 adult Spanish language-dominant Latinos, 127 female, 103 male. 95% of the sample were from Latin America and the	*(All questionnaires were translated into Spanish)* Brief Physical and Sexual Abuse Questionnaire (BPSAQ;	1. Dissociation scores significantly predicted the severity of altered perception scores the childhood trauma only model.	Adequate

	being ill with nerves, *ataques de nervios* and altered perceptions, trauma-related psychiatric diagnoses and psychological processes (dissociation) in a Latino psychiatric outpatient sample.	in a Structured Clinical interview for DSM-IV (SCID). Participants were provided with a pack of questionnaires: the DES-II, *nervios* questionnaire and altered perceptions questionnaire.	Caribbean. 83% had low household incomes and 62% had a high school education or less. Those with substance use disorder, dementia or history of psychosis were excluded. Participants were recruited from the Hispanic Treatment Program of the New York Psychiatric Institute (NYSPI) Anxiety Disorders Clinic.	Marshall et al., 1998) An altered perception questionnaire in the process of construction, assessing visual, auditory and tactile hallucinations. Dissociative Experiences Scale II (Calson & Putnnam, 1993) *Nervios* questionnaire based on four idioms related to anxiety	2. Dissociation also predicted altered perception scores in those who have child and adult trauma.	
Longden et al. (2016) UK	**2.** To determine whether measures of dissociation are significantly associated with non-auditory hallucinations in a well-characterised sample of psychosis patients when emotional disturbance and exposure to childhood adversity, including sexual and	Cross-sectional: patients were randomly selected from a list of eligible patients and questionnaires were administered during an interview by a researcher in a single meeting (unless participants indicated they would prefer otherwise). Participants were offered £5 gift vouchers for taking part.	Clinical/ general population: 67 adults were recruited from EIP services. 36 case participants, 18 female, 18 male. Mean age=25.31 years (SD=4.06). 50% White, 44.4% Asian, 5.6% Afro-Caribbean. Case patients reported non-auditory hallucinations at any stage during illness episode. 31 control participants, 15 female, 16 male. Mean age=26.48 years (SD=4.58). 67.7% White, 29% Asian, 3.8% Afro-Caribbean. Control patients reported no lifetime history of non-auditory hallucinations.	Life Stressor Checklist-Revised (LSC-R; Wolfe, Kimerling, Brown, Chrestman, & Levin, 1996) Self-report questionnaire administered about the presence/ absence of hallucinations. Judgements on whether reports qualified as genuine hallucinations were based on criteria specified by Slade and Bentall (1988). Dissociative symptoms were assessed with the Revised Dissociative Experiences Scale (DES-II; Carlson & Putnam, 1993)	1. Dissociation scores were significantly different between the two groups. Though childhood adversity scores were not significantly different, case participants reported more instances of childhood rape and higher exposure to emotional abuse. The control group were more likely to be adopted, fostered or placed in institutional care. 2. Individuals with a higher number of adversity exposures were more likely to report more than one hallucination modality. 3. Alongside exposure to childhood sexual abuse, total non-sexual abuse adversity and global distress, dissociation	Strong

	non-sexual abuse are adjusted for. 2. To examine whether a dose-response relationship exists between cumulative adversity and the number of reported hallucination modalities.		Inclusion criteria: Inpatients and outpatients were eligible. Exclusion criteria: Organic medical conditions for which hallucinations may be a symptom, history of dissociative disorder diagnosis and hallucinations reported following substance misuse.	Global distress was assessed using the Depression Anxiety Stress Scales–Short Version (DASS-21; Lovibond & Lovibond, 1995)	remained the only statistically significant predictor of non-auditory hallucinations. When auditory hallucinations were included in the model as a predictor, the estimate of effect between nonauditory hallucinations and dissociation remained similar but at marginal significance.	
Muenzenmaier et al. (2015) (Secondary analysis of pre-existing data set investigating the effects of a highly structured court-ordered post-discharge case management regimen (AOT) for individuals) with SMI diagnosis. USA	1. To examine whether there exists, and at what strength, a dose-response association between SCE and delusions and hallucinations in psychiatric outpatients with SMI. 2. To examine whether the strength of the association is maintained throughout a year-long longitudinal follow-up. 3. To examine whether such an association is robust to control for symptoms of dissociation and other factors thought to confound that association.	Cohort study: face-to-face interviews conducted with patients who were interested and consented, including the Structured Clinical Interview for DSM- SCID) and DES-T were conducted at baseline and at 3-, 6-, 9- and 12-month intervals. Follow-up rates were 84.7% for 3 months, 62% for 6 months and 72.7% for 12 months. No significant differences identified in the characteristics of those followed-up	Clinical population: 183 participants; 111 men and 72 women, aged between 18-65 years. 53.5% African American, 29% non-white Hispanic. Participants were diagnosed with severe mental illness by mental health outpatient clinics in the Bronx and Queens (New York, US). Inclusion criteria – aged between 18-65, history of SMI, capacity to give informed consent and ability to speak English or Spanish. Outpatients discharged from one of seven participating clinics within the past 3 months were contacted.	History of Physical and Sexual Abuse Questionnaire (Meyer, Muenzenmaier, Cancienne, & Struening, 1996) – childhood physical and sexual abuse domains only. Stressful family environments assessed via questions related to substance use and mental illness of a caretaker, witnessing of sexual or physical abuse and arrest history of immediate family member. A composite SCE index was summed based on the seven categories of abuse assessed (Felitti et al., 1998). Structured Clinical Interview for the DSM-IV (SCID; First & Gibbon, 2004) –	**2.** Controlling for socio-demographics, diagnosis and management programme, SCEs were significantly related to lifetime reports of both delusions and hallucinations. Each additional SCE was associated with a 1.20 increase in the incidence rate ratio for hallucinations. 2. Dissociation was significantly related to hallucinations and reduced the association between stressful childhood experiences and hallucinations. The regression coefficient	Strong

		and those lost to follow-up.		hallucinations and delusions subscales were created based on responses. Hallucinations subscale consisted of four categories assessing auditory, visual, tactile and olfactory/ gustatory hallucinations. $\alpha = .59$ Dissociative Experiences Scale Taxon (DES-T; Waller et al., 1996). $\alpha = .86$	declined by 47% and was no longer significant when dissociation was controlled, indicating that including dissociation reduces the dose-response relationship between stressful childhood experiences and hallucinations over time.	
Nesbit et al. (2022)* New Zealand & Australia	1. To assess dissociation as a mediator of the relationship between childhood abuse and auditory hallucination frequency, characteristics and associated distress in those with Dissociative Identity Disorder (DID) and Schizophrenia Spectrum Disorders (SSD).	Cross-sectional: questionnaires administered to participants in a structured interview format at a laboratory, clinic or participants' home. Participants received a $10 voucher for participating and travel costs.	Clinical population: 99 stabilised inpatients and outpatients recruited from nongovernmental organizations, hospital programs, and private practices in New Zealand and Australia. Inclusion criteria: participants experienced auditory hallucinations. Two groups: DID group (n=50): 2 males and 48 females, mean age = 45.14 years (SD = 10.91). SSD group (n=49): 28 males, 21 females, mean age of 43.76 years (SD = 10.84).	The Childhood Trauma Questionnaire (CTQ-SF; Bernstein et al., 2003). The Psychotic Symptom Rating Scales (PSYRATS; Haddock et al., 1999) – hallucination subscale. A single additional question assessed prevalence of voice-hearing. Mental Health Research Institute Unusual Perceptions Schedule (MUPS; Carter et a;., 1995). The Dissociative Experiences Scale (DES-II; Carlson & Putnam, 1993). *Item 27 removed.*	1. Compared to people with SSD, people with DID had significantly higher levels of childhood abuse and dissociation. 2. For people with DID, depersonalisation mediated the relationship between child abuse and auditory hallucination distress. When abuse increased, and depersonalization was controlled, distress reduced. Amnesia was not a significant mediator. 3. No dissociation variables mediated the relationship between childhood abuse and auditory hallucination frequency. There were no significant correlations between dissociation and auditory hallucinations in the SSD group.	Good

		The DID module from the Dissociative Disorders Interview Schedule (DDIS; Ross et al., 1989)	4. For people with DID, depersonalisation and amnesia mediated the relationship between childhood abuse and visual hallucinations. There were no correlations with absorption. For people with SSD, absorption mediated the relationship between childhood abuse and visual hallucinations. Depersonalisation was not a significant mediator and amnesia was not correlated with visual hallucinations. 5. For people with DID, depersonalisation and amnesia mediated the relationship between childhood abuse and tactile and olfactory hallucinations. For people with SSD, absorption mediated the relationship between childhood abuse and olfactory hallucinations but there were no significant correlations between dissociation and tactile hallucinations. 6. For people with SSD, absorption mediated the relationship between childhood abuse and gustatory hallucinations. Depersonalisation did not mediate the relationship for people with DID.

Offen et al. (2003) UK	1. To determine whether reported childhood sexual abuse is related to the severity of symptoms in patients who experience auditory hallucinations	Cross-sectional: participants consented to an interview where they provided basic demographic information, completed three self-report measures and answered questions relating to a history of sexual abuse in childhood.	Clinical population: 26 patients, 19 males, seven females, mean age = 34 years (no SD). 23 were Caucasian, one Afro-Caribbean, two were mixed race (Caucasia/ Afro-Caribbean). All patients had experiences auditory hallucinations in the last three years. Recruited from community-based clinics in which clinicians were asked to identify cases of patients reported auditory hallucinations and could talk about them without distress.	Research Interview for Early Loss Events (Burton, 1991), - one question relating to sexual abuse was asked. The Beliefs about Voices Questionnaire (BAVQ, Chadwick & Birchwood, 1995). The Dissociative Experiences Scale (DES-II; Carlson & Putnam, 1993). The Beck Depression Inventory (BDI; Beck et al., 1961)	1. 10 patients (5 male and 5 female) reported a history of childhood sexual abuse. There were proportionally more reports of abuse by females than by males. 2. Compared to those who reported no sexual abuse, those who reported childhood sexual abuse had significantly higher levels of dissociation and depression. 3. Scores on the BAVQ malevolence scale tended to be higher in the abused group but this difference was not significant. 4. There were significant negative correlations of age at first abuse with dissociation, depression and beliefs that the voices were malevolent.	Good
Pearce et al. (2017)* UK	1. To examine whether dissociation and insecure attachment styles mediated the relationship between childhood trauma and psychotic experiences.	Cross-sectional: participants accessed the survey containing the questionnaires online via a link in the study advert placed on social media websites.	Clinical population: 112 participants, mean age=18-72; 30 males, 81 females, mean age = 40.26 years (SD = 12.50). 89% White Caucasian, 11% 'other'. Inclusion criteria: Aged 18 years Having ever received a schizophrenia-spectrum diagnosis, antipsychotic drug treatment for psychosis or psychotic experiences, treatment in a mental health unit, hospital	The Brief Betrayal Trauma Survey (Goldberg & Freyd, 2006) The Community Assessment of Psychotic Experiences (Stefanis et al., 2002) – only scales related to hearing voices and paranoia The Dissociative Experiences Scale—Revised (DES-R; Dalenberg & Carlson,	1. The regression pathways indicated that childhood trauma significantly predicted dissociation and dissociation significantly predicted voices. 2. Dissociation was a significant mediator of the relationship between childhood trauma and voice-hearing. Fearful attachment was not a significant mediator. Childhood trauma did not predict voices independently of dissociation and attachment.	Strong

			or input from a community mental health team or early intervention service for psychosis, or received therapeutic input for experiences related to psychosis.	2010) (controlling for item related to voice-hearing) The Relationship Questionnaire (Bartholomew & Horowitz, 1991)		
Perona-Garcelán et al. (2010) Spain	1. To study traumatic and dissociative experiences in a sample of Spanish psychotic patients.	Cross-sectional: participants were approached at a day centre and those who consented were invited to completed questionnaires.	Clinical population: 37 patients who had been diagnosed with psychosis participated in this study. 6 males, 31 females, mean age = 36.46 years (SD = 8.09) Participants recruited from a mental health rehabilitation day centre in Seville, Spain.	Patients marked the traumatic experiences they had experienced and the age they occurred on a list. The Positive and Negative Syndrome Scale (PANSS; Kay, Opler, & Lindenmayer, 1988). *Spanish version (Peralta-Martin & Cuesta Zorita, 1994)* The Dissociative Experiences Scale II (Carlson & Putnam, 1993) *Spanish version (Icaran, Colom & Orengo-Garcia, 1996)*	1. Those who reported from hallucinations had experienced a significantly higher number of traumatic experiences in childhood compared to people who had not reported any. They had not experienced more traumas in adulthood. 2. Those with higher dissociation scores (>25) had experienced significantly more childhood traumas but did not differ in the number of adulthood traumas. 3. Those with higher dissociative experience scores also had significantly higher scores on the PANSS hallucinations item than those whose level of dissociation was nonpathological. 4. Compared to individuals without hallucinations, those with hallucinations had significantly higher dissociation scores.	Good
Perona-Garcelán et al. (2012)*	1. To investigate the relationships between	Cross-sectional: participants were	Clinical population: 71 patients diagnosed with	The Trauma questionnaire (TQ;	1. Childhood trauma was positively associated with	Strong

Spain	childhood trauma and positive psychotic symptoms, specifically hallucinations and delusions, and the role of these dissociative processes in this relationship.	approached at a day centre and those who consented were invited to completed questionnaires.	psychosis, confirmed by clinical interview and reference to medical records. Unclear how many men and women, mean age=39.08 years (SD=8.98). Participants recruited from a mental health rehabilitation day centre in Seville, Spain.	Davidson et al., 1990) *Spanish version used (translated using guidelines from (Muniz & Hambleton, 1996)* The PANSS (Kay, Opler, & Lindenmayer, 1988) *Spanish version (Peralta-Martin and Cuesta Zorita, 1994)* The Dissociative Experiences Scale II (Carlson & Putnam, 1993) *Spanish version (Icaran, Colom & Orengo-Garcia, 1996)*	the total DES-II score, its three subscales, and hallucinations and delusions. 2. Dissociation significantly mediates the relationship between childhood trauma and hallucinations, but not delusions. 3. Of the DES-II subscales, only depersonalisation significantly mediated the relationship between childhood trauma and hallucinations.	
Perona-Garcelán et al. (2014)* Spain	1. To examine the relationship between childhood trauma, dissociation (specifically absorption and depersonalisation) and mindfulness in subjects with and without hallucination proneness.	Cross-sectional: Participants completed the questionnaires in groups of 40 people. All participants completed the questionnaires in the same order. No financial or academic incentives were given.	General population: 318 participants, 67 men, 251 women, mean age = 21.41 years, (SD = 5.78). *High hallucination-proneness:* participants who scored above the standard deviation from the mean. N = 55, 15 men, 40 women, mean age = 22.11. *Low hallucination-proneness:* participants who scored below the standard deviation from the mean. N=28, 7 men, 21 women, mean age = 22.36.	Trauma Questionnaire (TQ; Davidson et al., 1990). *Spanish version used (translated using guidelines from Muñiz and Hambleton, 1996)* Launay-Slade Hallucination Scale–Revised (Bentall & Slade, 1985) Tellegen Absorption Scale (TAS; Tellegen & Atkinson, 1974). *Spanish version used (translated using*	1. There were significantly more childhood traumas in those who were prone to hallucinations compared to those who were not. 2. There were no significant differences between those prone and not prone to hallucinations as a function of trauma. 3. There was a significant positive correlation between childhood traumas and depersonalisation and absorption. 4. In the mediation analysis, only the indirect effects for absorption and depersonalisation were	Strong

			Participants were recruited from the Universities of Seville and Almería, Spain.	*guidelines from Muñiz and Hambleton, 1996)* Cambridge Depersonalization Scale (CDS; Sierra & Berrios, 2000) Southampton Mindfulness Questionnaire (Chadwick et al., 2008). *Spanish version (translated using guidelines from Muñiz and Hambleton, 1996)*	significant. Mindfulness was not a significant mediator.	
Varese et al. (2012) UK	1. To test whether dissociation mediates the relationship between childhood trauma and hallucination-proneness in a sample of psychotic patients with diagnoses in the schizophrenia-spectrum. 2. To examine whether dissociation is related to reality discrimination difficulties by comparing patients with and without pathological dissociative symptoms using an auditory signal detection task.	Cross-sectional: participants completed the study individually either in a quiet room at the Bangor School of Psychology or in appropriate facilities in inpatient and outpatient units in North Wales. After completing a clinical interview and all questionnaires except the trauma questionnaire, participants read a set of instructions for the auditory signal detection	Clinical/ general population: 45 patients with diagnoses in the schizophrenia spectrum were recruited from in-patient and out-patient services in North Wales (UK). Eligibility was confirmed using a clinical interview comprising the Structured Clinical Interview for the Positive and Negative Syndromes Scales (SCI-PANSS; Opler et al., 1992) and additional items taken from the 'Demographic Data', 'Education and Work History' and 'Treatment and Hospitalization History' sections of the overview	The Child Abuse and Trauma Scale (CATS; Sanders & Becker-Launsen, 1995) PANSS (Kay et al. 1987) The Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986) The Ammons QT (Ammons & Ammons, 1962), used as a measures of pre-morbid verbal intelligence. The auditory signal detection task was used as a measure of reality discrimination.	1. All patient groups scored significantly higher on the PANSS positive symptom scale compared to controls. Hallucinating patients scored significantly higher on the PANSS and LSHS-R compared to other patient groups. The difference between remitted hallucinators and non-hallucinating patients was not significant. 2. Hallucinating patients had significantly higher DES scores compared with clinical and healthy controls. 3. Both hallucinating and non-hallucinating patients scored significantly higher than controls on the CATS. Non-hallucinating patients	Good

	To replicate previous findings that linked hallucination-proneness to childhood trauma, dissociative symptoms and reality discrimination abnormalities.	task, described as a hearing test. Participants filled out the trauma questionnaire after the task and were debriefed.	module of the Structured Clinical Interview for the DSM-IV (SCID; First et al. 2002). 20 control participants were recruited from the Bangor University Community Research Panel. Eligibility confirmed via the SCI-PANSS – participants were required to have no past or current hallucinatory experiences and no past or current psychiatric problems. Four groups: hallucinating (n=15), remitted hallucinators (n=14), non-hallucinating (n=16), controls (n=20).		reported significantly higher neglect and physical abuse compared to controls. Remitted hallucinators scored higher than controls only on measures of neglect/ negative environment. Hallucinating patients reported significantly more child sexual abuse compared to other patient groups. 4. In an aggregated sample mediation analysis, the relationship between childhood trauma and hallucination proneness was positively mediated by DES scores. This was replicated in the clinical sample. Dissociation also significantly mediated the effect of sexual abuse on hallucination-proneness in both aggregated and clinical samples.	
Wu et al., (2022) Hong Kong	1. To investigate the prevalence of trauma and dissociative symptoms and disorders in a clinical sample. 2. To examine the concurrent validity of pathological dissociation in patients with schizophrenia-spectrum disorders. 3. To examine the differences between	Cross-sectional: participants were randomly selected from a pool of 486 inpatients in the year 2021. Participants completed self-report measures before being invited to a structured interview to collect clinical and	Clinical population: 100 participants between the age of 36 and 71, 55 male, 45 female, mean age= 58.26 (SD=7.31), hospitalised for approximately 8-10 years. 79 participants diagnosed with schizophrenia, 21 diagnosed with schizoaffective disorder. 13 participants has past/current diagnosis of	Brief Betrayal Trauma Survey (BBTS; Goldberg & Freyd, 2006) *Chinese version(Fung et al., 2021)* Dissociative Experiences Scale-Taxon (DES-T Waller et al., 1996) *Chinese version (Fung Ho et al., 2018)*	1. Compared to participants without pathological dissociation, those with pathological dissociation had significantly higher scores on the auditory hallucinations subscale of the PSYRATS. 2. Significantly more participants with pathological dissociation reported high-betrayal trauma and were	Good

	dissociative and non-dissociative patients.	demographic data. Participants were provided with a gift voucher in return.	depression and no participants had a past/ current diagnosis of PTSD or Dissociative Disorders. One participant had a diagnosis of BPD.	PTSD Checklist for DSM-5 (PCL-5; Bovin et al., 2016) *Chinese version (Fung et al., 2019)* PSYRATS (Haddock et al., 1999) *Chinese version* (Chien et al., 2017) The Dissociative Disorders Interview Schedule (DDIS; Ross et al., 1989) *Chinese version (Fung et al., 2016)*	provisionally diagnosed with PTSD.

* indicates studies referring to mediation

Quality of studies

Nine studies were rated as of strong quality, seven of good quality and three of adequate quality. Of the studies included, 19 were cross-sectional and one study used a cohort design, with four follow-up time points. Although some tentative inferences could be made about causality, directionality of effect could not be determined in any of the included studies owing to the design employed. Studies of the general population typically recruited larger samples than those of clinical populations, though implications relating to statistical power were rarely discussed. Based on studies reporting sample characteristics, the majority of participants were White, Western and female. Though most studies employed some control of confounding effects during analysis, including demographics, diagnosis and specific subscales derived from measures, only six studies (Berry et al., 2018; Bortolon & Raffard, 2018; Bortolon et al. 2017; Longden et al., 2016; Muenzenmaier et al., 2015; Pearce et al., 2017) measured and controlled for additional variables such as mood/ distress and paranoia. This affects the extent to which the role of dissociation could have been delineated from the effects of related and/ or confounding phenomena and therefore, may introduce bias to the findings reported.

Several issues of reporting were also highlighted during quality appraisal. Methods of recruitment and the study procedure were often poorly described, particularly for non-clinical populations and studies using online methods. There was considerable variation in the quality of demographic information available despite most studies reporting that this information was collected. Few studies justified the selection or modification of measures, and the characteristics of questionnaires were typically poorly described. Studies that employed translations of measures often provided a good overview of measures, including response

options and psychometric properties. The suitability of the analytical approach, and of parametric testing, was often not addressed and there was also some variation in the reporting of effect size and estimates of variance. Overall, the ubiquity of missing and/ or unclear information is a limitation of the studies included; this affects the quality of evidence relating to the role of dissociation and the extent to which this role can be understood in the broader context of the literature.

Main findings

The findings of studies broadly refer to the associations between developmental trauma, dissociation and hallucinations, dissociation as a predictor and dissociation as a mediator. There were no clear patterns in the findings of studies based on quality.

Associations between developmental trauma, dissociation and hallucinations

Individuals higher in hallucination proneness were found to have more childhood trauma and higher levels of dissociation compared to those lower in hallucination proneness (Berry et al., 2018; Perona-Garcelán et al. 2014). Experiences of childhood adversity were associated with higher hallucination proneness and levels of dissociation (Perona-Garcelán et al., 2010), including depersonalisation, absorption and amnesia (Bellido-Zanin et al., 2018; Berry et al., 2018). One study showed that participants meeting criteria for pathological dissociation also reported significantly more hallucinatory symptoms and high betrayal-trauma compared to those who did not report pathological levels of dissociation (Wu et al., 2022). Some evidence indicated that there were no significant differences between those higher and lower in hallucination proneness as a function of trauma (Perona-Garcelán et al., 2014), though

another study with similar findings suggested this may reflect comparatively lower levels of abuse reported in non-clinical populations (Berry et al., 2018).

One study found that those with current or a history of hallucinations scored higher than participants from the general population on measures of childhood trauma, with those currently experiencing hallucinations reporting significantly more child sexual abuse (Varese et al., 2012). In another study of voice-hearing specifically, there were significant negative correlations between age at first abuse and dissociation and beliefs that voices were malevolent (Offen et al., 2003). In the same study, those reporting child sexual abuse reported significantly higher levels of dissociation and depression compared to those reporting no sexual abuse, a finding supported by studies of varying quality in both clinical and general populations (Longden et al., 2016; Gomez & Freyd, 2017). In Longden and colleagues' comparison of clinical and general populations, clinical participants reported more instances of childhood rape and higher exposure to emotional abuse whereas control participants were more likely to be fostered, adopted or placed in institutional care. It was also found that individuals with a higher number of adversity exposures were more likely to report more than one hallucination modality. Though these findings indicate that child sexual abuse may be particularly prevalent across clinical and general populations reporting hallucinations, those studies of clinical populations (Longden et al., 2016; Varese et al., 2012; Offen et al., 2003) are limited by smaller samples, alongside no discussion of implications for statistical power. Such findings should be treated with caution owing to an increased risk of type II error.

Some studies of clinical populations considered similarities and differences in the those reporting schizophrenia or related diagnoses and Dissociative Identity Disorder (DID). One

study found that compared to people with diagnoses of schizophrenia-spectrum disorders, people with a diagnosis of DID reported significantly higher levels of childhood abuse and dissociation (Nesbit et al. 2022). In a study comparing individuals with a diagnosis of schizophrenia with and without a history of childhood maltreatment and DID, those with a history of maltreatment reported significantly higher levels of childhood trauma and pathological dissociation compared to those without a history of maltreatment, with individuals in the DID group reporting the highest levels of trauma and dissociation (Dorahy et al., 2009). In another study, the experience of hearing voices was closely associated with a range of dissociative phenomena in both English and Chinese-speaking clinical populations (Fung et al., 2020). Specifically, those who heard voices had significantly higher levels of dissociation and reported significantly more high and low betrayal trauma compared to those reporting experiences of depersonalisation without voice-hearing and control participants. That this finding was only partially replicated in a Taiwanese clinical population where those reporting pathological dissociation also reported significantly more high-betrayal trauma and increasingly severe hallucinatory experiences (Wu et al. 2022) could be related to issues of statistical power, though may also suggest a need to distinguish the role of high and low-betrayal trauma, and potentially interpersonal and non-interpersonal trauma across cultures.

Developmental trauma and dissociation as predictors of hallucinations

Six clinical studies of varying quality examined the relative contributions of developmental trauma and dissociation in predicting hallucinations. In Dorahy and colleagues' (2009) study, those with experiences of maltreatment were found to be at increased risk of various voice-hearing symptomology and there was a further increase in the risk of voice-hearing experiences for those with DID compared to those with schizophrenia and a childhood

maltreatment history. Though this incremental effect appears suggestive of a central role of dissociation in understanding voice-hearing, such findings were limited by a small sample, poor control of confounding and inadequate reporting. There were similar issues relating to control and reporting in another clinical study, where dissociation scores were found to significantly predict the severity of auditory, visual and tactile hallucinations for individuals reporting exposure to childhood trauma (Lewis- Fernández et al., 2010). Dissociation was also found to predict the severity of hallucinations in those who had experienced both child and adult trauma, but crucially, as those who experienced trauma only in adulthood were excluded from the analysis, further inferences as to specificity of childhood trauma were not possible.

In a cohort study examining post-discharge programmes for individuals with a range of clinical diagnoses, stressful childhood experiences significantly predicted lifetime reports of hallucinations after controlling for socio-demographics, clinical diagnosis follow-up period and programme, with each additional stressful experience corresponding to a 1.2 increase in the incidence rate of hallucinations (Muenzenmaier et al., 2015). However, when the effect of dissociation was also controlled for, the regression coefficient was rendered statistically non-significant and the dose-response relationship was reduced. Though there were some limitations related to reporting, this study was of good quality and supports the potential centrality of dissociation in the relationship between developmental trauma and hallucinations.

In a strong-quality study of individuals with a current or historic schizophrenia-spectrum diagnosis, childhood trauma significantly predicted levels of dissociation, which in turn, significantly predicted hearing voices (Pearce et al., 2017). However, in a study of similar

quality controlling for affect and age, dissociation (alongside attachment avoidance) was a significant independent predictor of hallucination proneness, whereas developmental trauma was not a significant predictor in the model (Berry et al., 2018). In another study of strong quality, dissociation remained the only significant predictor of non-auditory hallucinations whereas sexual abuse, non-sexual adversity and global distress were statistically non-significant (Longden et al., 2016). Critically, Berry and colleagues' findings could be related to differences in levels of trauma reported by clinical and general populations, or the measure of hallucination *proneness* as opposed to hallucinations meeting clinical threshold. Longden and colleagues' findings may also indicate that the combined effects of dissociation, specific demographic variables and affect/ distress could impact relative the contribution of trauma in the development of hallucinations across modalities. Owing to a greater level of control employed in both Berry and Longden and colleagues' studies compared to Pearce and colleagues' study, the observed variance in findings may also be related to issues of statistical power. Controlling for potential confounding variables typically necessitates an increase in sample and therefore, underscores the importance of researchers reporting power analysis alongside the findings of statistical tests.

Dissociation as a mediator

In an investigation of memories of threat and submissiveness in a non-clinical population, the relationship between early life experiences and hallucination proneness was fully mediated by dissociation (Bellido-Zanin et al., 2018). In this relationship, absorption and depersonalisation were significant mediators whereas dissociative amnesia was not significant. In a similar-quality study of a student population, dissociation significantly mediated the relationship between childhood maltreatment and hallucination-proneness (Cole

et al., 2016), though absorption was the only significant mediating subscale, and depersonalisation and dissociative amnesia were not statistically-significant. These studies were similar in their recruitment of large student populations and failing to control for additional confounding variables, though the subtle difference in findings could reflect different conceptualisations of trauma as reflected in experiences of threat and submissiveness compared to physical and sexual abuse, neglect and degree of negativity. That different dissociative processes may be implicated based on the type of trauma is an idea supported by several studies. Two studies specifically highlighted that dissociation mediates the relationship between sexual abuse and hallucinations in a non-clinical (Gomez & Freyd, 2017) and in both a clinical and aggregated clinical/ control sample (Varese et al., 2012). One study was of stronger-quality (Varese et al., 2012), though was limited in its recruitment of a smaller sample. Both studies were cross-sectional and did not control for additional confounding variables that could be related to different experiences of trauma, such as shame, effectively limiting inferences as to trauma-specific pathways.

In a clinical study of individuals diagnosed with psychosis, dissociation significantly mediated the relationship between childhood trauma and hallucinations, though depersonalisation was the only subscale that reached significance (Perona-Garcelán et al., 2012). In another study of a student population, absorption and depersonalisation were significant mediators of the relationship between childhood trauma and hallucinations (Perona-Garcelán et al., 2014). The differences in these findings may reflect differences in sample size and/ or the conceptualisation of hallucinations, as measured by the PANSS (Kay et al., 1988) and hallucination proneness, as measured by the LSHS-R (Bentall & Slade, 1985) or aspects of dissociation in the DES (Carlson & Putnam, 1993) compared to the TAS (Tellgen & Atkinson, 1974) and CDS (Sierra & Berrios, 2000). Findings might also indicate

differences in the psychological processes in those with established diagnoses of psychosis compared to those with no clinical diagnoses, though this explanation is weakened by a lack of measurement of psychopathology in the student population.

In two strong-quality studies investigations of large, French-speaking non-clinical samples, it was shown that after controlling for demographic characteristics and psychopathology, childhood trauma was a significant predictor of hearing voices and seeing visions (Bortolon et al., 2017; Bortolon & Raffard, 2018). However, when dissociation was entered into the structural equation models, this effect was no longer significant, suggested to indicate mediation. In Bortolon and colleagues' study specifically, dissociation mediated the relationship between physical abuse and hallucination-proneness as well as the relationship between the schemas of subjugation and vulnerability (linked to both sexual and emotional abuse) and hallucination proneness. Although these findings are also supportive of trauma-specific pathways to hallucinations, potentially via a network of related cognitive processes, the cross-sectional design limits the directionality of findings. Furthermore, both studies employed a French translation of the DES (Darves-Bornoz et al. 1999), based on two subscales: autopilot and defence, the latter of which was used in the mediation analyses. This prevents a consistent comparison with studies using the original measure and highlights the importance of understanding dissociation as culturally-determined. Indeed, the differences in Bellido-Zanin and colleagues' (2018) and Cole and colleagues' (2016) findings may also reflect cultural understandings of hallucinations and/ or dissociation in the Spanish and British samples, respectively.

In Varese and colleagues' (2012) study, the relationship between developmental trauma and hallucination proneness was mediated by dissociation, and in another study of higher quality,

dissociation was a significant mediator of the relationship between childhood trauma and voice-hearing (Pearce et al., 2017). In this study, childhood trauma did not predict voices independently of dissociation and attachment, but fearful attachment was not a significant mediator. Critically, higher-quality studies examining related phenomena in addition to those under investigation, are suggestive of related roles for attachment and negative schema (Berry et al., 2018; Bortolon & Raffard, 2018; Bortolon et al., 2017), which could indicate that dissociation operates alongside developmentally-related phenomena in its relationship to hallucinations more broadly.

One study conducted a mediation analysis where different dissociative processes were considered alongside each hallucination modality in individuals diagnosed with schizophrenia-spectrum disorders (SSD) and Dissociative Identity Disorder (DID) (Nesbit et al., 2012). Though depersonalisation was found to mediate the relationship between child abuse and auditory hallucination distress in those diagnosed with DID, there were no significant correlations between dissociation and the characteristics or distress associated with auditory hallucinations for people diagnosed with SSD, precluding mediation. The authors suggest that these findings may be explained by less frequent and severe dissociation in those with SSD compared to DID, and that pathological dissociation and distress about voices are related to the division in identities characterising DID. The authors also suggest that this may indicate utility in distinguishing between the *presence of*, and *characteristics associated with*, auditory hallucinations as an outcome.

Depersonalisation and dissociative amnesia were common mediators for people diagnosed with DID in the relationship between childhood abuse and visual, tactile and olfactory hallucinations, though there were no dissociative processes implicated for gustatory

hallucinations. For people diagnosed with SSD, absorption mediated the relationship between childhood abuse and visual, olfactory and gustatory hallucinations and there were no dissociative processes implicated for tactile hallucinations. The authors distinguish effect sizes for each of these relationships to suggest that the process by which child abuse may increase the experience of non-auditory hallucinations may be more related to compartmentalisation for those with DID and detachment for those with SSD. It is also questioned as to whether the phenomenological experiences of dissociation in individuals with different psychiatric diagnosis are comparable.

Discussion

Summary

This systematic review examined the quality of evidence for the role of dissociation, specifically as a mediator, in the relationship between developmental trauma and hallucinations. The reported associations between developmental trauma, dissociation and hallucinations are broadly in line with the extant literature (Sar et al., 2010; Grubaugh et al., 2011; Matheson et al., 2013; Coughlan & Cannon, 2020), with some findings indicating potential utility in distinguishing between clinical and general populations owing to differences in the levels and type of abuse reported (Varese et al., 2012; Longden et al., 2016; Berry et al. 2018). Within clinical populations specifically, there was also some evidence to suggest differences in the trauma, dissociation and hallucinatory experiences reported by individuals diagnosed with schizophrenia and psychosis compared to dissociative disorders (Fung et al., 2020; Nesbit et al., 2022).

Several higher quality studies indicated that levels of developmental trauma and dissociation were predictive of hallucinations (Pearce et al., 2017; Longden et al., 2016; Berry et al., 2018; Wu et al., 2022), with some evidence of a dose-response relationship based on psychiatric diagnoses and maltreatment history (Dorahy et al., 2009; Muenzenmaier et al., 2015). Where researchers controlled for confounding, findings indicated that dissociation may be implicated alongside attachment avoidance (Berry et al., 2018), affect and distress across hallucination modalities (Longden et al., 2016).

There was some evidence of varying quality to suggest that dissociation may have mediating role in the relationship between developmental trauma and hallucinations (Varese et al., 2012; Perona-Garcelán et al., 2012; Perona-Garcelán et al., 2014; Cole et al., 2016; Gomez & Freyd, 2017; Pearce et al., 2017; Bortolon & Raffard, 2017; Bellido-Zanin et al., 2018; Bortolon et al., 2018; Nesbit et al., 2022). Several studies attempted to introduce greater specificity to this relationship by examining the separate elements of dissociation, including depersonalisation, absorption and dissociative amnesia (Perona-Garcelán et al., 2012; Perona-Garcelán et al., 2014; Cole et al., 2016; Bortolon & Raffard, 2017; Bellido-Zanin et al., 2018; Bortolon et al., 2018; Nesbit et al., 2022), and some studies distinguished between different types of developmental trauma (Varese et al., 2012; Gomez & Freyd, 2017), auditory and non-auditory hallucinations (Nesbit et al., 2022), as well as related phenomena, such as negative schema (Bortolon et al., 2018). Overall, there is some emerging, preliminary evidence of more specific pathways, potentially from different forms of trauma to auditory and non-auditory hallucinations, through different dissociative processes.

Critically, it is possible that this evidence might also reflect differences in the conceptualisations of trauma, hallucinations and dissociation, not only across measures, but

within the same measure where it has been modified and/ or translated. It was also suggested that it could be important to distinguish between the presence and characteristics of hallucinations as an outcome. In addition, some comparisons of study outcomes suggested there could be some differences in dissociative processes both between clinical and general populations, and within clinical populations based on psychiatric diagnosis. Although this finding is supported by recent comparisons (Dorahy et al., 2023), the current review also identified comparatively smaller samples in studies of clinical compared to general populations. This might indicate that observed differences in findings could reflect issues of statistical power and therefore, readers are invited to be cautious in drawing distinctions between clinical and general populations and considering evidence for trauma-specific pathways.

Limitations of included studies

Of the studies included, 19 employed a cross-sectional design and the remaining study used a cohort design, with both baseline and follow-up measures collected in adulthood. This limits the extent to which the direction of the effect can be elucidated and whether the relationship between developmental trauma, dissociation and hallucinations could constitute an aetiological mechanism. That very few studies measured additional and/ or confounding variables is also a threat to the validity of this relationship, particularly given both theoretical and empirical literature, some of which is included in the current review, indicating that more complex networks of psychological phenomena may underlie the relationship between developmental trauma and both auditory and non-auditory hallucinations (Berry et al., 2017; Evans et al., 2015; Appiah-Kusi et al., 2017). The generalisability of findings is also limited by a lack of ethnic and gender diversity amongst the samples where this was reported.

This review has highlighted the wide range of scales used to measure developmental trauma, dissociation and hallucinations across modalities. Translations and modifications of measures were also made, and in some cases altered the underlying scales (e.g. Darves-Bornoz et al., 1999) or reflected cultural understandings of dissociative and hallucinatory experiences (e.g. Lewis-Fernandez et al., 2010). Critically, this affects the extent to which findings can be compared across studies as any observed variance in findings may be attributed to differences in the psychometric properties of measures and operationalisation of variables. The heterogeneity of measures applied in this field may indicate a need for explicit reporting of how key variables are defined and operationalised in line with research questions, with justifications for modifications as appropriate.

Taken altogether, the quality of evidence available currently indicates that dissociation could be part of an aetiological mechanism, and there could be specific pathways between qualitatively different experiences of trauma, dissociation and hallucinations, but without research designed to delineate causality amongst samples of greater diversity using clearly defined and justified forms of measurement, this remains a theoretical proposition.

Strengths and limitations of the review

Although the included studies have limitations, this review strengthens the pursuit of greater specificity in the understanding of developmental pathways underlying the link between traumatic events experienced in childhood and hallucinations. The search strategy was inclusive, employing wider definitions of trauma supported by empirical evidence (Coughlan & Cannon, 2020) and considering hallucinations in all modalities, and therefore extends the findings of previous reviews (Sideli et al., 2020; Bloomfield et al., 2021).

The range of approaches seen across the studies necessitated a tool equipped to manage a variety of methodologies. However, the breadth of the tool used (Kmet et al., 2004) may have affected specificity of the comparison of methodological rigor based on issues of quality specific to this field. For example, the range of approaches to the operationalisation and measurement of trauma, dissociation and hallucinations arguably necessitates reporting of definitions and an explanation of the psychometric properties of questionnaires, potentially including a theoretical justification for usage in line with research questions. This is important in the context of a lack of consensus in the understanding of psychological phenomena, such as hallucinations and dissociation, particularly where variation may reflect cultural differences.

Although there was a prospective agreement between raters as to additional relevant considerations when evaluating studies (see Appendix D for details) , some issues of quality only became apparent when rating, such as the employment of appropriate exclusion criteria and whether information related to substance misuse and medication had been elicited from the samples. This could have led to inflated scores and therefore, future reviews should consider whether quality assessment tools can be modified in line with specific issues of quality in this field.

As the search strategy did not include grey literature, the review is also subject to publication bias, further compounded by the inclusion of studies published in only English. This may have affected the extent to the search strategy was able to detect studies finding results in contrast to that seen in the extant literature. Though beyond the scope of the current review, findings may have also been enriched by a consideration of research examining the lived experience of hallucinations, including their content.

Clinical Implications

This review highlights a range of implications for clinicians, presented in Table 3.

Table 3 Clinical Implications

Clinical Implications
• To consider the importance of developmental trauma in the assessment and psychological formulation of hallucinations across modalities. • To consider taking a history of past experiences in childhood where individuals present with hallucinatory experiences and within this, to consider screening for trauma-related disorders such as PTSD. • To consider the potential complexity of psychological processes underlying hallucinations, including related constructs such as attachment and schemas. • To consider an assessment of dissociative processes in individuals presenting with either developmental trauma and/ or hallucinations across modalities. • To consider the range of ways to measure dissociation, including the strengths and limitations of how dissociative processes are conceptualised in specific questionnaires, as well as the psychometric properties therein. • To consider how the psychometric properties of questionnaires may contribute to how we understand developmental trauma, dissociation and hallucinations, particularly when distinguishing between presence and features. • To consider cultural variations in the understanding and definition of dissociation and hallucinations and that the extent to which aspects of trauma and dissociation may be implicated in the development of hallucinations may vary based on linguistic and cultural definitions. • To consider the contribution of diagnoses to our understanding of how dissociative processes may connect experiences of developmental trauma and hallucinations, e.g. dissociative processes may be more related to detachment and compartmentalisation for those with Schizophrenia-Spectrum Disorders, and Dissociative Identity Disorder, respectively. • To assess confounding phenomena such as paranoia, anxiety and depression. • To remain curious as to potential alternative explanations of how hallucinations may have developed given the limitations of the evidence relating to dissociation.

Implications for future research

The quality of included studies strongly highlights a need for studies designed to establish causality and directionality. There was some evidence for the utility of examining the

incidence of hallucinations over time (Muenzenmaier et al., 2015) and indeed, longitudinal research beginning in childhood and continuing into adulthood may offer the most reliable and valid approach to delineating the role of dissociation in the relationship between developmental trauma and hallucinations. Such studies are challenging to manage ethically, logistically and financially, and therefore, researchers have suggested that studies of clinical interventions where a variable of interest is targeted, such as dissociation, may also improve understanding of causality (Brand et al., 2017).

Future studies would also benefit from a consideration and measurement of potentially confounding and/ or related social, psychological and relational phenomena, such as affect, distress, co-morbid symptoms of psychopathology (e.g. anxiety, depression and paranoia), attachment and negative schema as well as demographic characteristics. Establishing more evidence related to non-auditory hallucinations is also important given the scarcity of studies identified in the current review. Taken altogether, such investigations would not only improve the quality of evidence in this area, but also go some way to delineate and specify that which could be a complex network of psychological processes involved in the aetiology of hallucinations across modalities.

The extent of unreported and unclear information in the included studies also emphasise a need for improved reporting of recruitment and study procedures, measurement and analysis. That differences in findings could reflect differences in definitions of outcomes and variations and translations in measures suggest a need for researchers to both explain and justify the conceptualisation of variables. Related to this, researchers may benefit from further elucidating characteristics of both clinical and general population samples, and specifically, taking care to acknowledge and assess the differences in the symptoms and

phenomenology associated with different psychiatric diagnoses. Amongst the wide variety of measures employed for all variables, it was noted that the most common measure of dissociation across studies was constructed almost forty years ago and therefore, future research might consider measures taking account of the growth in the phenomenological understanding of dissociation, including the lived experience of individuals, such as the Dissociative Experiences Measure, Oxford (DEMO; Černis et al., 2018) and Felt Sense of Anomaly Scale (ČEFSA; Černis et al., 2021).

Conclusions

This review aimed to critically assess the evidence for the role of dissociation in the relationship between developmental trauma and auditory and non-auditory hallucinations. Twenty independent studies provided evidence of associations between the variables of interest, with more than half suggesting that dissociative processes could have a mediating role, including between more specific forms of trauma and hallucinations. More broadly, findings suggest that a network of psychological processes might underlie the aetiology of hallucinations, requiring further examination. Though studies were generally of good to strong quality, a reliance on cross-sectional designs and limited control of additional variables are threats to the validity of findings and as such, the proposed aetiological pathways based on developmental trauma, hallucinations and dissociation remain theoretical. Improvements in the design, methodology and reporting of studies are key to our understanding of how developmental trauma may be related to hallucinatory experiences.

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Service Improvement Project

"They talk about how mental health may affect parenting, but they don't talk about how much your mental health might be affected *after you lose a child*." Perspectives on forced adoption in a service for vulnerable families

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Proposed Journal: This report is intended for submission to Ethics and Social Welfare and has been written and formatted in accordance with this (Appendix D). This journal has been selected owing to its focus upon topics related to social welfare, particularly based on the voices of individuals affected. Similar studies have been published in this journal. Additional submission information is included in Appendix E

Abstract

Legislative reform in the UK has prioritised the welfare and rights of children where there are safeguarding concerns. Parents' views have comparatively less weight and children may be placed in long-term alternative care without their birth parents' consent, a process colloquially referred to as 'forced adoption'. This service-improvement project aimed to explore parent and staff perspectives about processes related to forced adoption with a view to support a therapeutic service for vulnerable families consider how to address unmet needs. Eleven semi-structured interviews were undertaken with four parents and seven professionals. Five key themes were derived from birth parents' interviews related to experience of service processes, parents' investment in parenting, injustice, the impact of adoption and required support. Six key themes were derived from staff interviews related to service context, circumstances around adoption, competing role priorities, the observed impact for families, the impact of adoption and required support. Recommendations are made to the service based on birth parents and professionals' experiences and reflections, shown alongside responses from the Clinical Lead for the service. Implications for birth parents, professionals and services are discussed.

Introduction

In the UK, legislation emphasises the welfare, rights and interests of children (Adoption Act, 1976; Children Act, 1989). Following Laming's (2003; 2008) reviews of child protection in England, comparatively less consideration is given to parental rights, including the prerogative of family court to dispense with parents' views where there are safeguarding concerns (Fenton-Glynn, 2016). In England, the most common reasons for child removal are abuse, neglect or family dysfunction, where parenting capacity is considered chronically inadequate (Department of Education, 2018a). In the year ending in March 2022, approximately 31010 children were removed from their parents' care (Office of National Statistics, 2022). Many children are placed in alternative care arrangements without birth parents' consent, including in foster care, under special guardianship of family members, or formally adopted. Within services, these outcomes are colloquially referred to under the umbrella term 'forced adoption'.

Although the welfare of children is an unquestionable priority, the collateral consequences of child-removal are wide-ranging. Parents report a scarcity in social support following removal, including a lack of acknowledgement of the traumatic nature of their loss (Kenny & Barrington, 2018). Pronounced stigmatisation, exacerbated by additional factors, such as drug and alcohol issues, is suggested to contribute to marginalisation and exclusion from protective resources (Broadhurst & Mason, 2020) Records of child removal are thought to pervade parents' interactions with both welfare and legal systems, and often constitutes grounds to remove future children at birth (Broadhurst and Mason 2017; Broadhurst, 2015), such that parents find services omniscient and unpredictable (Honey et al., 2018).

The disparity in power between authorities and families in the context of child removal is a global issue, and social services are advised to consider the needs of, and risk to, vulnerable parents (Syrstad & Slettebø, 2020; Sankaran et al., 2018; Hinton, 2018). This is in contrast to the vilification of social workers in cases of abuse and death of vulnerable children (Littlechild, 2008), alongside the defunding of parental support services and prioritisation of treatment over prevention (Thompson & Thompson, 2020). Social workers highlight mixed feelings following their removal of children from parents, particularly where significant effort has been made to preserve families (Mills, 2012). Taken together, these ideas illuminate a complex landscape around child removal in terms of accountability and resourcing, suggested to have been exacerbated by the impact of Covid-19 (Cluver et al., 2020).

National legislation stipulates that the views and needs of birth parents should be assessed in cases of adoption (Department of Education, 2018b). However, there are no guidelines currently available in the UK regarding the support of parents with experience of the removal and placement of children in long-term care (including adoption), and much of the available research has taken place overseas, where terminology and processes might differ from that in the UK. Following the exposure of harmful adoption practices in Australia (Higgins, 2010), a scoping study was undertaken to develop service models for those affected in response to a national inquiry (Higgins et al., 2014). The study highlighted the negative sequalae of forced adoption and made suggestions for the role of mental health services, including support for: mental and physical health difficulties; feelings of grief, loss and guilt; maintaining positive relationships; constructing positive personal identities and concrete reparations. Five principles of good practice were outlined: accountability, accessibility (including affordability), efficacy and quality of intervention, diversity and continuity of care.

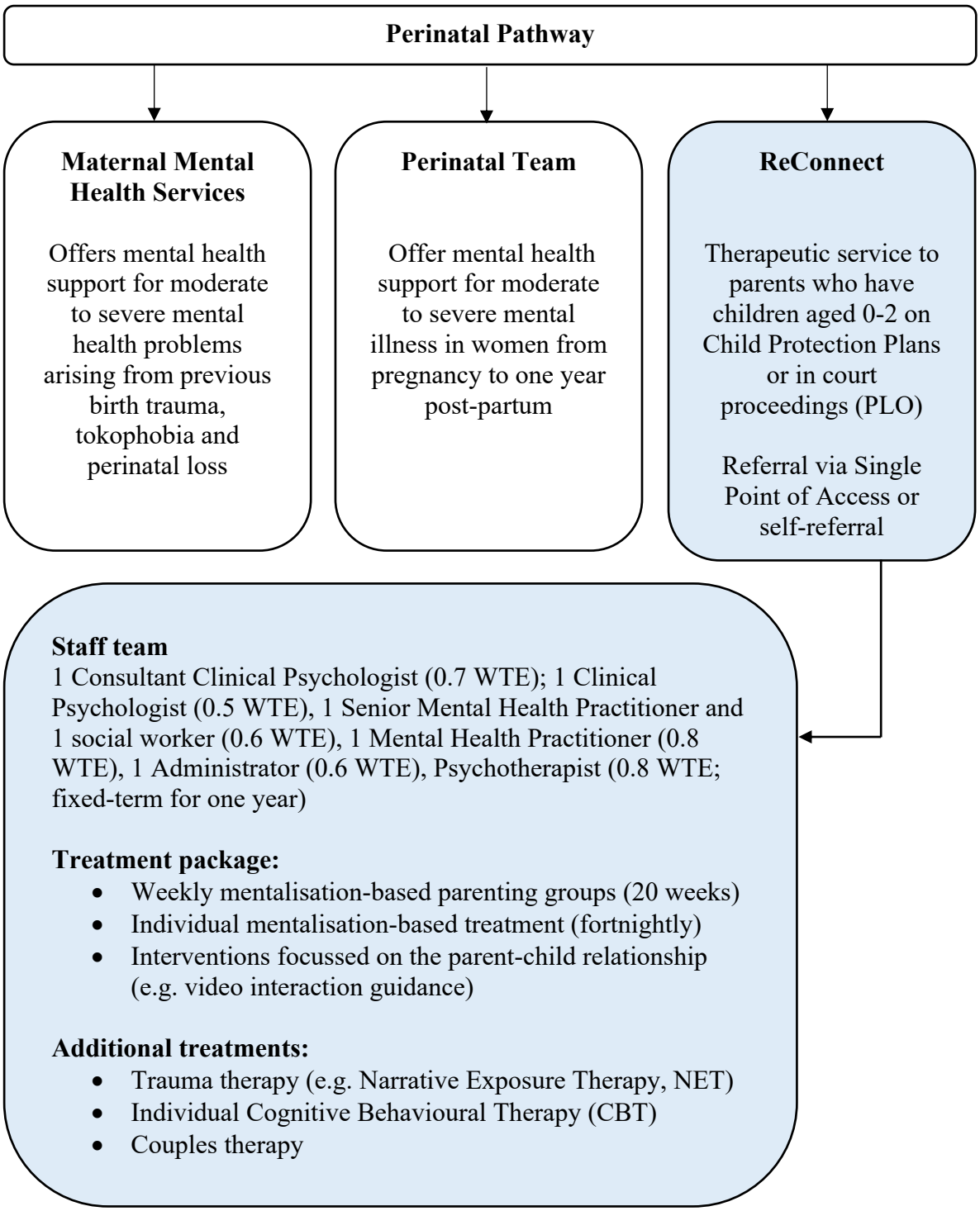
Theories of grief typically acknowledge periods of emotional distress prior to reorganisation, reparation and acceptance (Freeman, 2005), though the voices of parents amplified in studies of child removal are suggestive of potential nuances not wholly captured by current understandings of grief and loss. Birth parents' continued silence and shame is thought to be related to a perceived lack of entitlement to grieve, such that their loss remains hidden and unacknowledged, an experience typically referred to as 'disenfranchised grief' (Doka, 2002; Baum & Negbi, 2013; Morriss, 2018). Taken alongside findings that service intervention, whether sought or imposed, is often considered to be adversarial and humiliating (Novac et al., 2006; Honey et al., 2018), the experience of hidden and unacknowledged distress may not only affect parents' mental health, but also their relationship to help (Reder & Fredman, 1996). Therefore, it is essential for services to consider the complexity of difficulties presented by parents with experience of forced adoption, alongside barriers to accessing and sustaining support.

Local service context

In Buckinghamshire, the local authority have adopted the Assessment Framework (Department of Education, 2018b), comprised of an assessment of developmental needs, parenting capacity and environmental factors. Where social workers identify children aged 0-2 to be at risk of developing a disorganised attachment, they can refer to ReConnect, an NHS service based within Oxford Health NHS Foundation Trust (OHFT), aiming to improve the outcomes of vulnerable families. ReConnect has historically been based in CAMHS but it has since been repositioned within the Adult Mental Health directorate as part of the Perinatal Pathway (see Figure 1 for service structure). The service offers a manualised programme of intensive intervention, involving a mentalisation-based therapy (MBT) course and trauma

therapy where appropriate. Parents are also offered fortnightly individual MBT sessions, as well as six sessions of video-interaction guidance (VIG).

Figure 1 Perinatal Pathway in Oxford Health NHS Foundation Trust (ReConnect highlighted; reproduced with permission)



In preparation for an upcoming commissioning review, ReConnect sought a greater understanding of the needs of parents with experience of forced adoption, particularly where parents repeatedly return to services having had another child. Following consultation with ReConnect, three research questions were developed for an investigation of experiences of forced adoption from the perspectives of parents and the staff who have supported them, with the intention of developing support to account for unmet needs:

1. What is forced adoption like for parents?
2. What is forced adoption like for ReConnect and social care staff?
3. In what ways, if any, can ReConnect develop to support parents with experience of forced adoption?

Materials and methods

Based on an assessment by the Research and Governance team at OHFT, it was concluded that this project met criteria for service evaluation and ethical approval from the Health Research Authority was not required. This project has been approved as a clinical audit by OHFT (see Appendix F).

Design

Semi-structured interviews were conducted with parents with experience of service processes related to forced adoption, and professionals who have supported families where forced adoption has occurred. All interviewees provided verbal informed consent following a review of an information sheet.

Interviews were scheduled with the primary researcher (JE) and ranged from 40 minutes to 80 minutes. Questions were asked from a topic guide, designed by the researchers based on the research questions and approved by a parent with experience of child removal and court processes related to forced adoption (Appendix G). Follow-up questions were also asked based on information shared. All interviews were audio-recorded.

Sample and recruitment

The researchers took a purposive approach to recruitment, shown in Figure 2. Sample characteristics are provided in Table 1.

Figure 2 Recruitment strategy

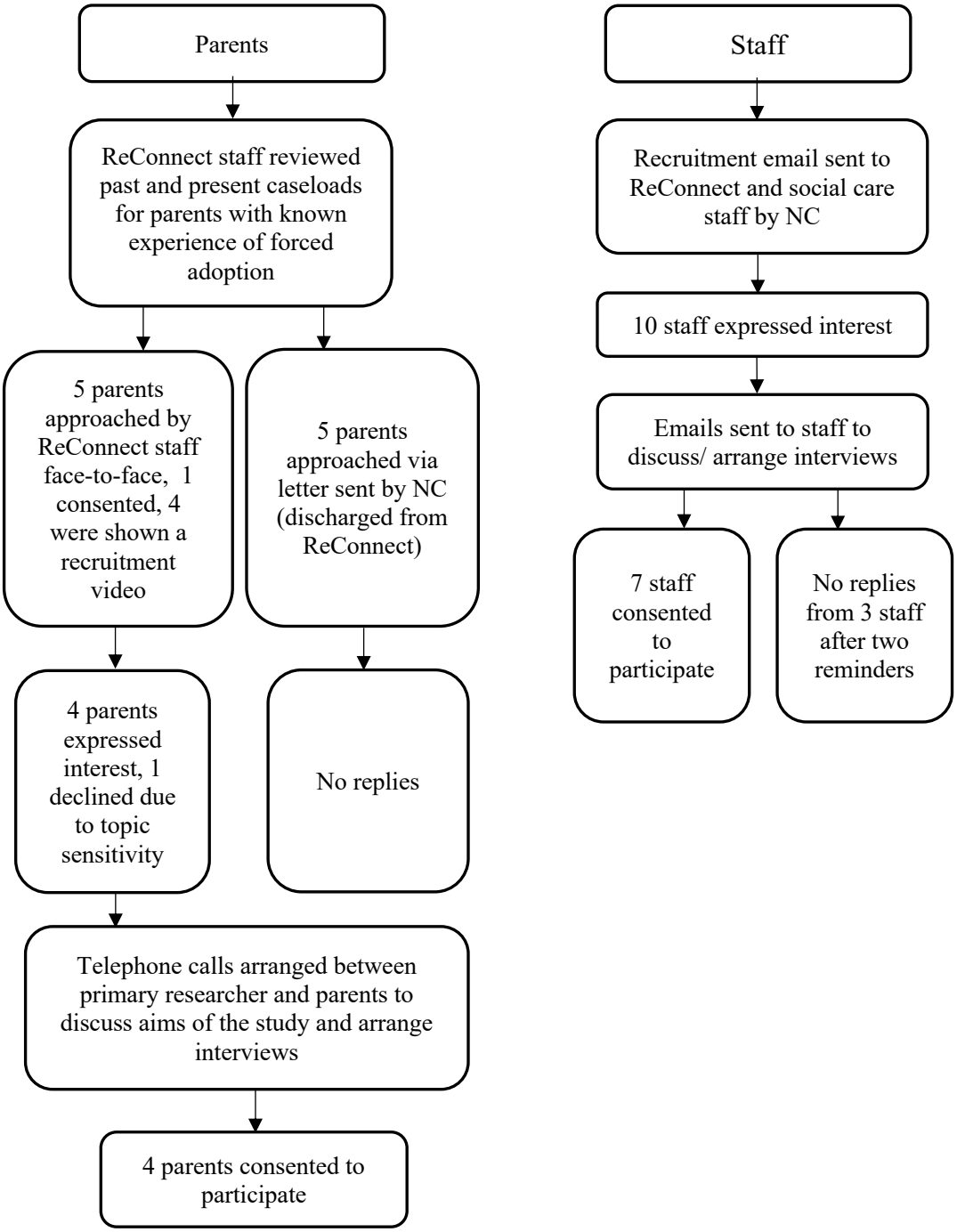


Table 1 Sample characteristics

				Parents		
	Age	Gender	Ethnicity	Employment	Education level	Interview
P1	31-35	Female	White European	Part-time	Diploma	Face-to-face
P2	21-25	Female	White British	Unemployed	College	Online
P3	21-25	Female	White British	Unemployed	College	Online
P4	31-35	Female	White British	Unemployed	GCSEs	Online
				Staff		
	Age	Gender	Ethnicity	Professional role	Experience of forced adoption	Interview
S1	41-45	Female	White British	Consultant mental health practitioner	>40 cases	Online
S2	31-34	Female	White British	Specialist practitioner	>30 cases	Online
S3	35-40	Female	White British	Clinical Psychologist	8 cases	Online
S4	35-40	Female	White Irish	Social worker	>60 cases	Online
S5	61-65	Female	White British	Social worker	12 cases	Online
S6	31-35	Female	White British	Social worker	24 cases	Online
S7	41-45	Male	Black African	Social worker	10 cases	Online

Theoretical assumptions and reflexivity

A predominantly inductive approach was taken to analysis, held within a broadly constructionist epistemological stance, wherein the meaning made from experiences was considered to shape and be shaped by language. Though a semantic approach was taken to coding, involving comments upon ideas, concepts and meanings explicitly stated by interviewees, latent themes were also developed where implicit ideas were considered to underpin explicit statements. This approach was considered in-keeping with an experiential orientation, which prioritises the lived experience and meaning of individuals' subjective realities (Braun et al., 2016).

The research team was comprised of two Consultant Clinical Psychologists (CA & NC), both with experience of working with vulnerable families where there is social care involvement, and one Trainee Clinical Psychologist/ researcher (JE). No prior relationships existed

between the researcher and interviewees. A position statement is provided in Appendix H to contextualise interpretations made by the primary researcher throughout analysis.

Thematic Analysis

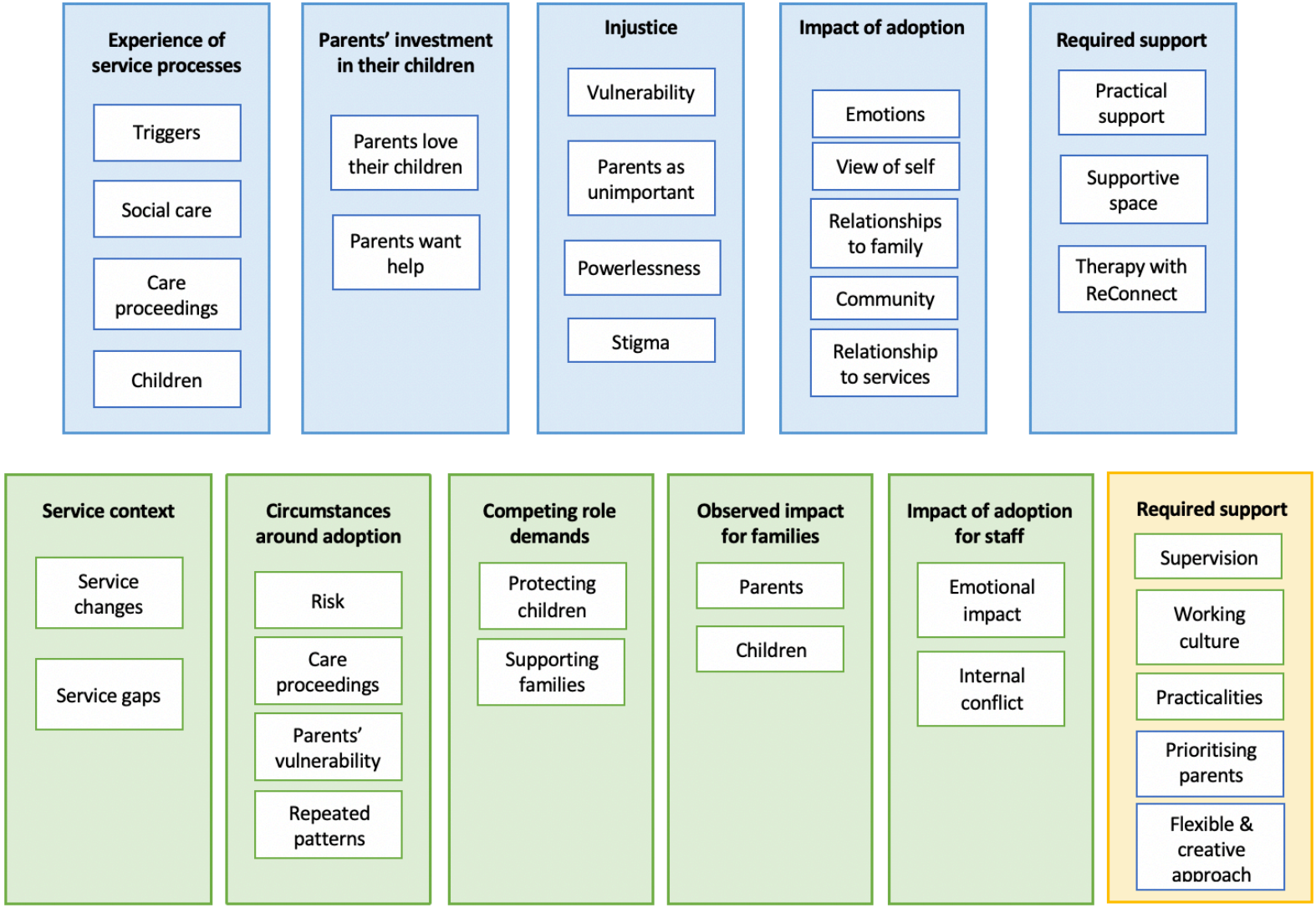
Eleven transcripts were analysed based on guidelines outlined in Braun and Clarke (2013) for thematic analysis. Transcripts were manually transcribed verbatim as part of familiarisation process, following which codes were generated and reviewed using Nvivo. Themes were organised around aggregated meaning across the codes generated for interviews, achieved via mind-mapping and collating groups of codes in spreadsheets. Themes were reviewed based on the patterns of codes comprising each theme and whether the theme captured elements of interviews, after which themes were defined and named. Analysis was a recursive process, with the primary researcher revisiting, adjusting and refining work from earlier stages based on ideas generated in later stages (Braun & Clarke, 2020). Reviews were also held with CA and a Trainee Clinical Psychologist outside the project who provided additional reflections and 'sense-checking' to support the process.

Results

Five key themes were derived from parents' interviews: a) experience of service processes; b) parents' investment in parenting; c) injustice; d) impact of adoption and e) required support. Six key themes were derived from staff interviews: a) service context; b) circumstances around adoption; c) competing role priorities; d) observed impact for families; e) impact of adoption; f) required support. A graphic representation of themes and subthemes are shown

in Figure 3, followed by a narrative explanation of analysis where subthemes are indicated in bold text.

Figure 3 Key themes and subthemes for parents (blue) and staff (green), alongside shared theme of support (yellow)



Parents' experiences

a) Experience of service processes

Parents recognised the **triggers** for service-involvement, including domestic abuse, financial problems, mental health difficulties (diagnosed, undiagnosed and misdiagnosed), and previous social care involvement, including for themselves as children.

Although some parents felt that social workers were friendly and helpful, and that they only disliked their job, and liked them as people, **social care** involvement was universally perceived as threatening. Parents emphasised that poor relationships with professionals in the context of high expectations led to a foreboding atmosphere: 'I'm thinking 'well if the other local authority removed my three children 'cos they're scared I'm gonna go back to their dad what stops you from doing that' (P1). Social services were portrayed as more invested in removing children than preserving families: 'they want to take those children off you- they say that it's not and they work to keep children with families- no they don't' (P4).

Parents felt that they are misrepresented during **care proceedings**, explaining that social workers 'will paint you out to be the biggest and baddest monster' (P4), with no credit given to their good intentions and motivation: 'I'm still devoted and still determined […] and that doesn't get noted' (P2). Parents reported that their children's needs are weaponised against them, which, in the context of misrepresentation and limited support, leaves them with no chance to demonstrate change: 'I'm a single young mother who is clearly lacking support […] but wasn't actually being given the chance or support to help me out' (P2).

Children were described as fearful of removal and parents noted an irony in the impact of social care intervention affecting children's wellbeing. Parents also explained that their children were often confused and distressed following removal, especially when they are moved around several different placements: 'he still runs in the room and he calls me 'mummy' […] and he gets upset when he leaves' (P2).

b) Parents' investment

Parents **love their children**. They explained aspirations to protect their children from repeating unhelpful patterns, and highlighted where they had sacrificed their own needs or been honest with services about their difficulties despite the consequences: 'it was the most hardest decision to say 'look my child needs to probably go into temporary foster care' […] but I knew I had to do right by him not just by myself' (P2). **Parents wanted help** to change their circumstances: 'the majority of parents want to be with their children so give them the chance to change their life around' (P4), and referenced motivation to change: 'they said that I needed to stop drinking and taking drugs, I still didn't get any support with that so I done it all by myself' (P3).

c) Injustice

Some parents recounted neglectful and abusive upbringings and considered themselves survivors. It was suggested that having poor attachment relationships left them **vulnerable** and ill-equipped to negotiate the parenting role: 'I might have needed a bit more support than other people but that's only because I had a lack of stability myself' (P2). Parents acknowledged intergenerational patterns of difficulties in their families. Feelings of guilt accompanied a sense of inevitability, with parents expressing frustration that their children might repeat historic patterns: 'I've been in that situation and I ended up how I ended up, I'm

just scared that my daughters or my boys will end up the same […] children they are mirrors […] I asked my daughter 'is it ok for daddy to shout at mummy', 'yeah', but no it isn't' (P1).

Parents felt **unimportant**, that personal circumstances were often overlooked and reasons for their perceived failings are irrelevant. Professionals were portrayed as disconnected from parents' humanity, particularly following adoption, when parents felt judged for their emotional reactions: 'they just don't care, nobody cares and then they leave you in pieces and then they judge you on that as well' (P1). Services were consistently depicted as **overpowering parents**, who felt silenced and stripped of their autonomy; 'you feel like you have lost all your human rights, you know it makes you feel like you just haven't got a voice you have to be so careful all the time' (P4).

Having mental health difficulties was linked to experiences of **stigma**, judgement and greater restrictions imposed by services. Diagnoses were thought to be used against parents, who felt punished for seeking help. Parents explained that while their mental health is considered a reason to remove their children, the impact of removal on their mental health is considered unimportant; 'they talk about how mental health may affect parenting, but they don't talk about how much your mental health might be affected *after you lose a child*' (P2).

d) Impact of removal/ adoption

Parents described unbearable feelings of distress and loss: 'I feel very much destroyed I feel absolutely so much heartache' (P2). They referred to a severed attachment with their children alongside loss of purpose and parental identity, for which they internalised blame. Parents reported attempting to cope with their **emotions**, including using drugs and alcohol and burying their emotions to protect their children from seeing their distress. Parents' **view of**

self was ‘torn apart, it made me feel inadequate as a human, it made me feel suicidal, it made me feel like a failure’ (P4). Parents questioned whether they can still be called a parent if they have lost their children.

Parents reported feeling rejected and criticised in **family relationships**, with some keeping their experiences secret: ‘I stop telling [my mum] stuff because she’s the kind of person that at some point she’ll throw it in your face- she would use it as ammunition against you’ (P1). Some parents acknowledged a greater sense of unity with their family, whereas others described conflicted feelings, particularly where they become disconnected from family who take on the care of their children. Parents also felt isolated in their **communities**; they described difficulties with closeness, linked to fear of judgement and feelings of shame around others: ‘sometimes I will get that judgemental remark back or they’ll be like ‘well you don’t need this you just have to do this’ (P3). Parents also encountered reminders of their children, seeing places they enjoyed or seeing other parents with their children.

Parents’ **relationship to services** was loaded with fear and mistrust following removal and adoption, often explained in the context of **injustice**. Within this, parents highlighted their desire for help, but conflicted feelings about approaching services: ‘I’m disappointed and upset and hurt by this decision but I still would like your support in helping me’ (P2).

Staff experiences

a) Service context

Staff highlighted that a gradual erosion of services had brought about procedural **changes** in social care alongside increased pressure upon workers to achieve good outcomes with limited resources: ‘whether it be parenting courses, support services or financial assistance, it is

definitely the most noticeable change […] all the changes the government bring every time they scale back our resources' (S1). Social workers distinguished between best practice and realistic practice and expressed concern that social care had become more investigative than supportive. Some staff also highlighted challenges with boundaries, brought about by remote working and social media use.

All staff highlighted **gaps** in holistic support for birth parents, particularly those with learning disabilities. Staff commented that services have high expectations of people in distress and difficult circumstances; exclusive criteria was described as displacing parental support to non-specialised and crisis services, amplifying service inaccessibility: '[mental health services] said 'yeah we'll work with this family but they need to come into our office, be really willing to want to change and to engage' (S4).

b) Circumstances around adoption

Staff explained that removal and adoption occur where children (including in-utero) are considered at high **risk** of harm. Antecedents included abuse and neglect, difficulties arising from parents' vulnerabilities and poor engagement with social care. Social workers acknowledged that **care proceedings** are predicated on a rigid and alienating system. They explained that as adoption is considered the most draconian order, court processes necessitate accountability: 'I'm in court and I'm seeing those kids every day, I don't find I have as much empathy 'cos I'm going in seeing children suffering and I'm automatically trying to find a place to put blame' (S1). Staff distinguished between responses of parents, from acceptance, to disengagement, denial and fighting back.

Staff acknowledged that parents' difficulties were often related to intergenerational trauma and family dysfunction, with many parents having experience of abuse, both past and present: 'some parents have also had really tough experiences themselves and therefore have quite limited resources on which to draw on' (S3). Having had limited opportunities to develop skills needed to negotiate life, alongside challenges related to austerity, parents were consistently described as **'vulnerable'**, 'innocent' and on an unequal footing with services: 'the thought of social care even being involved with my family makes my skin crawl, the powerlessness that they experience from day one is extreme, it's the state vs. you' (S1).

Staff recognised parents' desire to care for their children and wondered if having children in the context of previous removal(s) went some way to heal their loss. That similar difficulties and risk factors often remain present was suggested to underlie **repeated patterns** in removals: 'she's lost a child, she's grieving, has this hole in her life […] she got pregnant again and then of course second child was removed because she hadn't had the support' (S3).

c) Competing role demands

Social workers consistently emphasised that **protecting children is a priority** and that their role was to safeguard the best interests of children. They acknowledged that although 'parents love their child, they adore them and don't mean any harm' (S6), parents' needs are rendered less important by the presence of risk: 'the child's welfare is paramount and we have to shelve the parents' feelings' (S1).

Knowing parents are vulnerable, social workers tried their best to maintain hope and support them where they felt it was possible. They explained that that they empathise with parents and exhaust alternative possibilities with the aim of **supporting families** and preserving

relationships, but that parents' own difficulties and unmet needs affect their capacity to engage, including with interventions such as supervised contact: 'while we hoped she would be able to have direct contact, potentially is that desire for us to facilitate and support that contact realistic […] it would be too emotional for her […] her lifestyle is so chaotic it's not possible' (S6).

d) Observed impact for families

Staff emphasised that 'the impact of adoption cannot be measured' (S7) for **birth parents** and acknowledged their felt sense of injustice. The loss of a child was thought to be traumatic and leaving parents with feelings of guilt and shame. Parents were observed as having limited support whilst also conflicted about asking for help. They were also thought to be questioned and judged by others in their network: 'there's a lot of blame around it 'well if you've had your child adopted what's wrong with you' (S4), leaving them isolated and struggling to cope.

Removal and adoption were thought to be disruptive for **children**, particularly in terms of their attachments to family and confusion around absent siblings: 'what do you say to the younger siblings who's upset about the older sibling being adopted' (S7). Children were noted as confused and distressed, and some social workers commented on inconsistent support during the transition for children placed with family compared to adoptive parents.

e) Impact of adoption for staff

Staff described adoption as deeply saddening and unsettling. The **emotional impact** was felt to be traumatic and social workers reported feelings of loss and failure: 'no matter how many removals you've ever done, they're not fun […] on the surface it looks like you're hardened

to it but underneath you're not, it's not something you would wish to do' (S5). Some staff noted that they never forget adoption cases, whilst others felt that they were more affected earlier in their career.

Staff noted that adoption brings up **ethical questions** and reflected on potential adoption breakdown, particularly 'if we are placing a child from a minority background and we know that there is that research to show that they are not likely to be ethnically matched […] what is the impact for the child and parents'. Several staff noted an internal conflict between the ideas that adoption might be the right decision with the reasons for parents' difficulties, with some suggesting the current system re-traumatises parents: 'we're removing their child, adding another layer of trauma, saying well off you go, [they] come back to us a year later […] and we're like 'well what have you done to resolve your difficulties' and they're like 'well nothing' […] then we're like 'well we're gonna take your baby off you again because you still haven't done the work'' (S4).

f) Required support

Both professionals and parents made suggestions for support during their interviews, including comments upon the utility of ReConnect. These suggestions have been organised and summarised in Table 2, with specific ideas shown for the support parents thought could help them alongside ideas that professionals suggested could help parents and themselves.

Table 2 Suggestions for support for parents (made by parents and staff) and for the staff working with parents (made by staff).

Parents	**Practicalities and service scope**	**Supportive space**	**Therapy with ReConnect**
	Basic needs: housing, food and furniture	Empowerment and choices*	Self-referrals available
	Contact with adoptive families and/ or shared information about children	Empathy and understanding*	No requirement for social care involvement
	Preventative early intervention	Non-judgemental space*	Advertised more widely
	Support during and after court proceedings	Knowledge that trust is earned*	Advertised as free
	Support around bad news (e.g. following adoption, contact arrangements)	Discussion and negotiation*	Support with emotion regulation*
	Clarification around confidentiality*	Openness and friendliness*	Support with family dynamics* (e.g. where family members taking over the care of children
	Services familiar with third sector support	Unconditional positive regard*	Group therapy*
	Parents and children supported together*	Holding hope for parents*	Low intensity*
	Joint work between ReConnect and social care	Consideration of the impact of health and potential pregnancies*	Warmly decorated and well-equipped clinical rooms
	Contact arrangements to be monitored		To expand age-range of children in ReConnect service criteria
	Prioritising parents (staff suggestion)	**Flexibility and creativity (staff suggestion)**	
	Considering parents' inner child**	No singular approach/ one size fits all model**	
	Considering parents' humanity** (e.g. interests)	Staff permitted to think creatively and persist with engagement**	
	Support to change unhelpful patterns**	Strengths-based approach/ noticing positive aspects of parenting**	
	Childcare available for appointments	Consideration of relationship to help following adoption** (e.g. trust)	
Staff	**Supervision**	**Working culture**	**Practicalities**
	Supervision is a priority for management**	Intricacies and complexity of work is recognised by management	Team expansion in line with increased workload

Supervision offered to social care staff; staff not expected to seek it	Work evaluated by outcome measures appropriate to the flexibility of the service model	Training and further education requested by social care staff
Separate spaces for case-related and wellbeing-related reflection	Personal autonomy with work**	Physical office space; separate spaces for work and rest (e.g. kitchen to eat lunch)
External therapeutic support to support burnout/ vicarious trauma	Top-up support during critical periods, e.g. court proceedings	Team maintenance (e.g. shared lunches and informal check-ins)
	Prioritisation of time for rest and reflection**	
	Staff openness with difficulties/ struggles with work**	
	Services replicating expectations of staff, e.g. empathy, openness, understanding, would enable staff to support parents	

Asterisks indicate those ideas that are already provided/ facilitated by ReConnect from the perspectives of parents (*) and staff (**) interviewed.

Discussion

This project explored the experience of forced adoption for parents and the staff that support them. This was with the aim of supporting ReConnect to consider how they might adapt their service to meet the needs of parents with this experience. Eleven key themes were derived from a thematic analysis of interviews with parents, social workers and ReConnect staff.

Summary of analysis

Parents' love for their children was consistently emphasised, with staff in agreement that parents have good intentions and remain invested in parenting. For parents, adoption was felt to be a catastrophic loss and injustice. That their good intentions were judged as lacking was particularly impactful where parents had tried to address intergenerational patterns of abuse and trauma whilst knowing that they struggled with the required skills of parenting. Parents acknowledged their own vulnerability, seen as source of internal conflict for staff attempting to reconcile empathy for, and understanding of, parents' circumstances with the need to safeguard children.

Parents described asking for help but felt unheard by social services, portrayed as more invested in removal than support. This was seen in the context of a gradual erosion of services, with social workers desperate to provide the support needed, both with limited resources and knowledge that parents' experiences left them understandably mistrustful of services. Parents felt traumatised, dehumanised and powerless in a system that positioned them as unimportant. This was understood by staff as the result of a rigid system predicated upon investigation and accountability rather than understanding and support. Such reflections

are in line with the extant literature in its emphasis of the trauma of parents' loss and a scarcity of support (Kenny & Barrington, 2018), held within omniscient and flawed service processes (Honey et al., 2018). That staff explained the impact of vicarious trauma, feelings of stress, burnout and failure, and several ethical questions brought about by adoption is also in line with findings of mixed feelings in response to child removal (Mills, 2012).

Birth parents described the emotional devastation following their loss and the impact this has on their relationships with family, friends and communities. Specifically, parents' experiences of rejection, judgement, isolation and betrayal (when children are placed with family members), was linked to attempts to manage, including keeping their experiences a secret and burying their emotions (including via alcohol and illicit drugs). Though references to invalidation and a lack of acknowledgement can be understood in terms of disenfranchised grief (Doka, 2002), the impermanent nature of child removal (as opposed to the death of a child, for example), arising from repeated experiences of services as punishing and re-traumatising, is suggestive of a more pervasive, inherently relational consequence that might not be wholly captured by theories of grief. Parents' disenfranchisement was understood not as an experience located in them as individuals but rather, in their interactions with systems and therefore, brought ideas related to attachment to the minds of the authors.

Ideas related to attachment are evident throughout the narrative constructed with interviewees, from conversations about triggers and antecedents to those around the process and impact of adoption. Relationships, between parents and staff, and staff, teams and management, were portrayed as either remediating or reinforcing the impact of adoption, and the capacity for parents and staff to work effectively together. This suggests that ideas and

concepts pertaining to attachment, such as the secure base, might provide a useful framework from which to consider the provision of support for parents and the staff working with them.

Alongside provision for their basic needs, parents highlighted a need to be heard and empowered in a supportive space, with improved access to preventative early intervention. These ideas are broadly in line with the principles of accessibility, efficacy and continuity of care, outlined by Higgins and colleagues (2014) in their suggested service model. However, the current study extends this idea to consider the needs of staff providing support, who emphasised that supervision, practical support and an improved working culture was necessary for their wellbeing, which in turn, supported parents.

Summary of recommendations

Based on outstanding needs highlighted by parents and staff, recommendations have been made for ReConnect, shown alongside the response of the service in Table 3. Readers are invited to consider these ideas alongside the current service structure presented in Figure 1.

Table 3 Recommendations for ReConnect

	Recommendations	Response from ReConnect's Clinical Lead
Referral processes	Staff and parents report that ReConnect currently offer a valuable supportive space with the features agreed to be helpful, though accessibility is currently affected by the belief that referrals are required by a professional. An explicit self-referral process is recommended, with consideration for parents' access to resources, e.g. telephone calls be acceptable rather than completing a written form.	ReConnect currently accept self-referrals, though the service receives comparatively fewer of these compared to those made by professionals. It was suggested that the service can revise the information available online and print literature related to their service to make self-referral processes clearer.
	An estimated two thirds of families on Child Protection plans were not referred to ReConnect in 2021. It was unanimously agreed amongst interviewees that preventative, earlier intervention is necessary for parents. It is recommended that ReConnect explore the development of mandatory referral pathway from social care when a Child Protection plan is initiated.	It was agreed that a mandatory referral process would ensure that parents with children on Child Protection plans are offered support from ReConnect.
Advertising	Based on parents' feedback, it is recommended that ReConnect consider ways to advertise their services to increase their visibility to parents, such as by creating a social media presence and disseminating service information to third sector organisations in Buckinghamshire. It is critical their services are advertised as free of charge owing to parents' potential financial difficulties.	ReConnect will consider different ways to advertise the support they can offer parents. The service is currently compiling a leaflet for parents and will ensure this feedback is incorporated.
Appointments	The physical space for ReConnect's appointments was thought to be cold and clinical. It is recommended that ReConnect seek to redecorate their clinical space and renew furnishings, potentially with guidance from parents currently engaging with the service.	It was agreed that ReConnect could consider ways to improve the clinical space.
	Some forms of therapy conducted in parents' homes or with children present was considered inappropriate. It was suggested that being able to provide childcare services would strengthen the message that parents' needs are important, and they are deserving of space for themselves. Financial assistance to support costs	The Clinical Lead explained that historically, ReConnect supported parents with both transportation and a creche service to enable their attendance to a therapeutic group. It was felt that supportive measures are crucial to parents' ability to engage with

	associated with attending appointments was also suggested alongside this.	interventions, but there is currently a lack of sustainable funding for such support.
Advocacy for parents	Knowing that supporting access to housing, food and financial assistance is necessary, it is recommended that ReConnect advocate for parents' basic needs by familiarising themselves with services in the local area, providing information to parents and making referrals where necessary.	It was agreed this could be implemented.
	Social care do not have the resources to follow-up as to whether contact arrangements are taking place. It is recommended that ReConnect enquire with parents as to their contact arrangements, monitor this and advocate for parents by contacting social care where it is found that agreed contact with their children is not happening.	Similar to the views of staff interviewees, the Clinical Lead made the observation that undergoing care proceedings affects parents' personal agency and ability to use their voice. In line with ReConnect's attempts to empower parents, it was suggested that the service could support parents to report difficulties with contact arrangements.
Joint-work with social care	Following the acknowledgement that supporting staff is crucial to supporting parents, it is recommended that ReConnect seek and maintain a partnership with social care staff for the purpose of facilitating reflective practice, case consultation and teaching/ training. Within this, it is advised that ReConnect are clear in their position on confidentiality and that processes around sharing information is clearly communicated to parents.	Strengthening partnerships with social care teams was agreed to be a useful approach. It was also agreed that ReConnect could facilitate some shared reflective, consultation and teaching space with social workers, though the size and capacity of social care teams would necessitate some further planning to make this sustainable.
	To support staff awareness, it is recommended that ReConnect seek to co-produce a service map with social care staff detailing local and national organisations in the social, health and third sector relevant to supporting parents.	It was agreed that a service map could be implemented.
	ReConnect is currently commissioned to work with parents of children aged 0-2 years based on suggestions that support during this period confers the best chance of good outcomes (Public Health England, 2016). Owing to feedback that support is required for parents with older children or with historic experiences of removal, the recommended service map should be kept updated with organisations relevant for these groups.	

	It is recommended that ReConnect advocate for, and champion, access to supervision, training and external therapeutic support for social care staff, especially during critical periods, e.g. removal and care proceedings. It is specifically recommended that ReConnect provide training to social care teams about the importance and utility of clinical supervision. ReConnect staff specifically highlighted the utility of having spaces for case-related and wellbeing-related reflective practice.	It was agreed this could be implemented. The Clinical Lead explained that ReConnect have developed and delivered training to social workers on this issue and suggested that some further planning might be required as to how to help social care take learning forward given the high turnover of staff.
Team expansion to ReConnect	It is recommended that the ReConnect team expand to reflect the greater amount of work required to support parents with experience of forced adoption.	The Clinical Lead was in agreement with this, citing that ReConnect has five part-time members of clinical staff totalling 4 days whole-time equivalent. It was suggested that expanding the ReConnect team would be crucial in meeting the increased demands of the service intrinsic to this set of recommendations.
Continued evaluation	It is recommended that ReConnect seek to continue the evaluation of their service to consider the efficacy of attempts to support parents. It is advised that ReConnect seek consultation with services predicated on similarly integrative and flexible models, e.g. the PAUSE project, to consider any additional ways of collecting and presenting data related to outcomes.	It was agreed that further consideration for how ReConnect can demonstrate their outcomes as a service would be useful. The Clinical Lead explained that outcomes are not currently measured in line with Key Performance Indicators (KPIs), and therefore, it could be useful to introduce some service-specific measures to proactively collect data, e.g. how many children are de-escalated from Child Protection plans to Child in Need plans and how many parents go on to have children removed following ReConnect intervention.
Commissioning review	In light of several recommendations related to expansion, it is recommended that ReConnect seek a review of the work they are currently commissioned to do. It is recommended that ReConnect present data indicating that the long-term cost of intergenerational trauma to health and social care services necessitates greater investment in the present to protect the mental health of the future (Conti et al., 2021).	The Clinical Lead for ReConnect was in agreement with a commissioning review and having considered all the recommendations made, extended this to question whether ReConnect might be better placed as a specialist service within the local authority.

Limitations

Although this study makes several recommendations for ReConnect, it is important to consider limitations that may have affected the findings. Firstly, the sample was self-selected and over half of the parents approached did not participate. This raises questions as to the views that were not captured, considered particularly problematic in the context of this study, where researchers are part of services with whom parents are considered to have a poor relationship. The limited diversity of the overall sample also reduces the extent to which findings can be considered representative of parents and staff from the global majority as well as fathers, who did not participate. ReConnect are therefore advised to approach recommendations critically, and gather further data from parents and families to evaluate the suitability, tolerability and efficacy of interventions.

A further limitation relates to interview transcripts, which were not reviewed by interviewees. Although the semantic approach to coding is somewhat protective against over-interpretation, misinterpretation remains possible. The challenges in recruitment and difficulties around correspondence experienced by the researchers affected their ability to obtain feedback in this study. More broadly, this suggests that more flexible and creative approaches to recruitment and communication are required for research with underserved populations.

Conclusions

This project has highlighted the complexity and enormity of feelings about, and responses to, forced adoption for both parents and the staff that support them. Themes derived from interviews illuminated unique insights into lived narratives spanning the individual, family,

community, services and broader society, as well as relationships between these spheres. Predicated upon joint work, co-production, advocacy and expansion, recommendations uniquely situate ReConnect in the provision of direct therapeutic support, alongside an indirect, holistic approach to parents' unmet needs via the support of social care staff.

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Theoretically-Driven Research Project

An examination of interpersonal childhood trauma in one route to voices proposed by the Cognitive-Attachment Model of Voice-Hearing.

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Proposed Journal: This report is intended for publication in the British Journal of Clinical Psychology and has been written and formatted in accordance with this (Appendix J). This journal has been selected owing to its aim of publishing papers related to the aetiology of psychological disorders. Additional submission information is included in Appendix K.

Abstract

Objectives: Although the relationship between childhood trauma and voice-hearing is well-established, theoretical mechanisms that may explain this relationship remain exploratory. This study aimed to examine the specificity of the role of interpersonal trauma compared to non-interpersonal trauma in relation to voice-hearing by comparing the experiences of individuals who hear voices with individuals who do not hear voices.

Methods: 114 individuals, comprised of 47 voice-hearers and 67 non-voice-hearers completed a series of questionnaires related to voice-hearing, childhood trauma, dissociation and attachment either online, via the telephone or face-to-face.

Results: After controlling for confounders and non-interpersonal trauma, interpersonal trauma was found to significantly predict voice-hearing, with greater exposure corresponding to an increased risk of hearing voices. Levels of dissociation and disorganised attachment were higher for voice-hearers and were implicated in a series of mediation models designed to examine relationships between interpersonal childhood trauma, dissociation and attachment.

Conclusions: There may be some utility in distinguishing between interpersonal and non-interpersonal childhood trauma in the context of vulnerability to voice-hearing. Findings are also suggestive of a complex mechanism of psychological processes underlying the relationship between childhood trauma and voice-hearing, though attributing causality should be approached tentatively in light of methodological limitations and issues of generalisability.

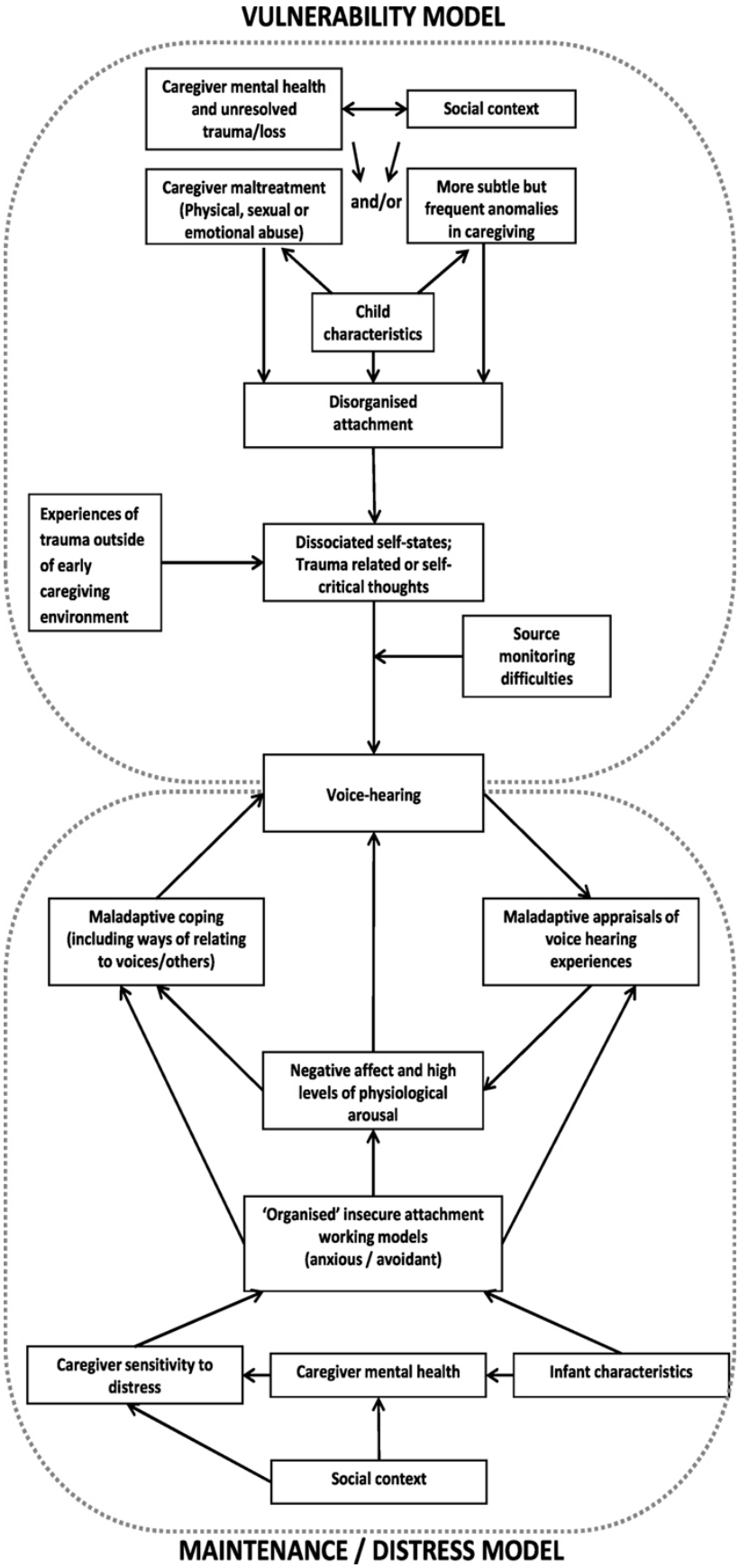
Introduction

Hearing voices that others do not hear is thought to affect two thirds of individuals diagnosed with psychotic illnesses in their lifetime (McCarthy-Jones et al., 2017). Although voice-hearing is not consistently associated with distress or intervention from mental health services (Johns et al., 2014), those who hear voices may experience a poorer quality of life, and are at an increased risk of attempted suicide (Thornicroft et al., 2004; Harkavy-Friedman et al., 2003). The aetiology of voice-hearing has been suggested to comprise of complex biopsychosocial interactions across the lifespan (Upthegrove et al., 2016), typified by longstanding theoretical and empirical interest in the relationship between early adversity and psychosis (Read et al., 2014). Critically, the content of auditory hallucinations can include a range of sounds, but the most widely-researched audible phenomenon in terms of aetiological mechanisms are voices, and therefore the current study will focus specifically on voice-hearing as an outcome.

Developmental trauma is highly prevalent in individuals diagnosed with psychosis (Varese et al., 2012; Matheson et al., 2013; Coughlan & Cannon, 2017) and studies have reported associations between traumatic experiences in childhood and features of voice-hearing (Begemann et al., 2022; Dorahy et al., 2009). Systematic reviews of available evidence have attempted to specify aspects of this relationship, including that pathways to specific symptoms of psychosis can be distinguished based on types of childhood abuse (Bentall et al., 2012). Further studies have found a cumulative dose-response effect between early adversity and auditory hallucinations (Trauelsen et al., 2015; Shevlin et al., 2011; Anda et al., 2006), and specified the content of voices in relation to the nature of early traumatic experiences (Blom & Mangoenkarso, 2018; Corstens & Longden, 2013).

Based on such findings, traumatic experiences in childhood have been increasingly positioned as critical to the psychological understanding of voice-hearing in adulthood (Steel, 2017). Research has increasingly attempted to identify additional psychological phenomena that might contribute to mechanisms that could explain how early adversity may be linked to features of psychosis, though these largely remain exploratory. The Cognitive-Attachment Model of Voice-Hearing (CAV; Berry et al., 2017) draws upon concepts of attachment and dissociation to propose one way in which individuals become vulnerable to hearing voices, held within broader explanations of vulnerability and maintenance. As shown in the vulnerability model in Figure 1, one route by which the CAV explains voice-hearing is via dissociated self-states, driven or exacerbated by a disorganised attachment derived from early adversity in caregiving. The CAV also explains how voice-hearing can be maintained via the influence of overall insecure attachment upon appraisal processes, emotion regulation strategies and interpersonal relationships following the onset of voices. However, the current study is concerned only with the route to voice-hearing proposed in the vulnerability model, which operates independently of the maintenance model.

Figure 1 The CAV (Berry et al., 2017; reproduced with permission)



Childhood attachment is thought to be crucial to the development of an understanding of the self as related to others (Shaw & Dallos, 2005). Secure attachment is characterised by positive beliefs about the self and others, the ability to regulate emotion and form relationships, whereas insecure patterns (such as anxious, avoidant and disorganised) are associated with poorer interpersonal abilities and emotion dysregulation (Mikulincer & Shaver, 2005). The CAV considers disorganised attachment a result of adversity in caregiving and describes the attachment patterns developed in childhood as shaping the representations individuals have of themselves and others in relationships over time, including in adulthood. Studies have highlighted attachment style as a potential mediator of the relationship between childhood trauma and features of psychosis, including both voice-hearing (Bucci et al., 2017; Pilton et al., 2016; Sitko et al., 2014) and paranoia (Wickham et al., 2015; Bentall et al., 2014; Sitko et al., 2014).

Dissociation, defined as the a 'lack of integration of thoughts, feelings and experiences into the stream of consciousness and memory' (Bernstein & Putnam, 1986, pp.727), has also been implicated in the relationship between childhood trauma and hallucinations (Longden et al., 2016; Varese et al., 2012; Offen et al., 2003) including as a mediator (Bloomfield et al., 2021; Sun et al., 2018). Researchers have argued that voices may reflect dissociated components of the self, resulting from trauma, loss and other interpersonal stress (van der Hart & Witztum, 2018; Longden et al., 2012). However, the theoretical basis for the role of dissociation has been criticised owing to a lack of conceptual distinction (Nijenhuis & van der Hart, 2011) and challenges in measurement (Černis et al., 2021)

Critically, an understanding of voice-hearing based on the CAV is contingent upon early traumatic experiences being of an interpersonal nature, such as physical and sexual abuse.

Theoretically, traumatic relational experiences can affect the internal representations a child has of themselves and others, whilst natural disasters and vehicular accidents may not be as intrinsically linked, for example. Some studies have shown that developmental trajectories may vary as a function of trauma type (Bortolon et al., 2017; Bentall et al., 2012) and others have distinguished between high and low betrayal childhood trauma in investigations of voice-hearing (Fung et al., 2022; Wu et al., 2022). No studies have made clear distinctions between interpersonal (which may be high or low betrayal) and non-interpersonal trauma, which is important in an assessment of the specificity of the definition of childhood trauma proposed by the CAV.

Aims and hypotheses

The primary aim of current study is to examine the specificity of the role of interpersonal trauma compared to non-interpersonal trauma in relation to voice-hearing by comparing the experiences of individuals who hear voices with individuals who do not hear voices. The secondary aim of the project is to examine the proposed pathway from childhood interpersonal trauma to voice-hearing via dissociation and disorganised attachment. Within this, the current study will utilise measures based on clarified conceptualisations of dissociation and disorganised attachment, and control for covariation between voice-hearing paranoia in analyses, with a view to extend previous research.

By focussing on voice-hearing as an outcome, the current study is in line with recommendations to establish greater specificity in developmental trajectories associated with trauma (Bentall et al., 2014). It is well-documented that establishing causality in this field by way of prospective, longitudinal research is complicated by issues of feasibility and ethics

(Brand et al., 2017). However, by outlining how the proposed concepts are related, findings of the current study are expected to enrich theoretical explanations of *how* early experiences of interpersonal trauma may contribute to voice-hearing and therefore, continue to illuminate the mechanism by which childhood trauma may be related to psychosis in adulthood.

The hypotheses for the current study are arranged in three stages. Preliminary hypotheses are designed to establish whether relationships between key variables are broadly in line with the extant literature. The primary hypothesis is theoretically-grounded and pertains to the aim of distinguishing between interpersonal and non-interpersonal trauma. The secondary hypotheses are designed to draw findings together in the context of a route to voice-hearing proposed by the CAV. In order to specify the role of disorganised attachment, hypotheses distinguish between the effect of disorganised attachment, as well as the broader construct of insecure attachment.

Preliminary hypotheses:

1. Those who hear voices will report significantly higher levels of interpersonal childhood trauma compared to those who do not hear voices.
2. Those who hear voices will report significantly higher levels of dissociation compared to those who do not hear voices.
3. Those who hear voices will report significantly higher levels of insecure attachment compared to those who do not hear voices.
4. Those who hear voices will report significantly higher levels of disorganised attachment compared to those who do not hear voices.

Primary hypothesis:

5. Whilst controlling for non-interpersonal trauma, interpersonal childhood trauma will be a significant predictor of voice-hearing.

Secondary hypotheses:

6. The relationship between childhood interpersonal trauma and voice-hearing will be mediated by disorganised attachment.
7. The relationship between disorganised attachment and voice-hearing will be mediated by dissociation.
8. The relationship between insecure attachment and voice-hearing will not be mediated by dissociation.

Methods

Design

The current study is cross-sectional and employed a between-groups design in which the experiences of individuals who hear voices were compared with the experiences of individual who do not hear voices. The study was approved by the Central University Research Ethics Committee at the University of Oxford (ref: R81513/RE006).

Participants

An a-priori power calculation based on the effect sizes for different forms of abuse and auditory hallucinations (Daalman et al, 2020) indicated that a range of between 66 to 120 participants would be sufficient for the primary analysis. Participants were 114 individuals, comprised of 47 individuals who reported hearing voices and 67 individuals who reported not hearing voices. Individuals must have been aged 18 years or over and living in the UK to participate. Individuals with diagnoses of dementia or brain injury were not eligible as any voice-hearing related to neurological changes was beyond the theoretical scope of the study. All participants were advised that they must not undertake the study whilst under the influence of alcohol, illicit drugs or legal highs.

Demographic characteristics of the sample and individual groups can be seen in Table 1. Chi-square analysis showed that voice-hearers and non-voice-hearers significantly differed on their highest level of education and specifically, at degree-level, AS or A-Level and having no formal qualifications. Chi-square values were also marginally significant for age, specifically the ranges 26-34, 45-54 and 55-64 years.

Table 1 Demographics

	Sample (%) (*n*=114)	Voice-hearing (%) (*n*=47)	Non-voice-hearing (%) (*n*=67)
Age^			
18-25	16 (14.0%)	5 (10.6%)	11 (16.4%)
26-34*	50 (43.9%)	14 (29.8%)	36 (53.7%)
35-44	23 (20.2%)	11 (23.4%)	12 (17.9%)
45-54^	10 (8.8%)	7 (14.9%)	3 (4.5%)
55-64^	10 (8.8%)	7 (14.9%)	3 (4.5%)
65-74	2 (1.8%)	1 (2.1%)	1 (1.5%)
75-84	3 (2.6%)	2 (4.3%)	1 (1.5%)
Undisclosed	0 (0.0%)	0 (0.0%)	0 (0.0%)
Gender			
Male	29 (25.4%)	8 (17.0%)	21 (31.3%)
Female	80 (70.2%)	35 (74.5%)	45 (67.2%)
Transgender male	1 (0.8%)	1 (2.1%)	1 (0.0%)
Transgender female	0 (0.0%)	0 (0.0%)	0 (0/0%)
Gender variant/ non-conforming	4 (3.5%)	3 (6.4%)	1 (1.5%)
Undisclosed	0 (0.0%)	0 (0.0%)	0 (0.0%)
Ethnicity			
Asian or Asian British	13 (11.4%)	2 (4.3%)	11 (16.4%)
Black, African, Caribbean or Black British	2 (1.8%)	0 (0.0%)	2 (3.0%)
Mixed or multiple ethnic groups	4 (3.5%)	2 (4.3%)	2 (3.0%)
White	94 (82.5%)	43 (91.4%)	51 (76.1%)
Undisclosed	1 (0.8%)	0 (0.0%)	1 (1.5%)
Highest level of qualification*			
No formal qualifications*	6 (5.3%)	6 (12.8%)	0 (0.0%)
GCSE or equivalent	2 (1.8%)	0 (0.0%)	2 (3.0%)
AS or A Levels*	11 (9.6%)	8 (17.0%)	3 (4.5%)
NVQ or equivalent	6 (5.3%)	2 (4.3%)	4 (5.9%)
Degree-level or equivalent*	88 (77.2%)	30 (63.8%)	58 (86.6%)
Undisclosed	1 (0.8%)	1 (2.1%)	0 (0.0%)

*Significant difference between groups, $p<.05$
^Marginal significance between groups, $.05<p<.60$

Participants were recruited to the study via social media, Hearing Voices groups and the UNIQUE research register, held by King's College London. Recruitment began in December 2022, beginning with poster advertisements shared via Facebook, Twitter, Instagram, Reddit and LinkedIn, and via organisers of Hearing Voices Groups. In February 2023, the recruitment strategy was expanded to include individuals on the UNIQUE register, who had consented to be contacted about research related to unusual experiences and were listed as

hearing voices. Participants were invited to complete the study online using the platform Qualtrics from December 2022, with the option to complete the study via the telephone, video calls or face-to-face made available in February 2023 following feedback from Hearing Voices groups that this would improve accessibility. Of those in the non-voice-hearing group, 66 individuals completed the study online with 1 person via video-call, and of those in the voice-hearing group, 41 people completed the study online, 2 people via the phone, 1 person via video call and 3 people met with a researcher face-to-face.

Measures

Voice-hearing

The Psychotic Symptom Rating Scales (PSYRATS; Haddock et al., 1999) are designed to assess features of auditory verbal hallucinations (11 items) and delusions (6 items). For the purposes of the current study, only the items for the frequency and distress related to voice-hearing were used to establish group allocation. Respondents rated items on a 5-point Likert scale based on their experience over the last week. Individuals who selected the item corresponding to a score of 0 ('voices not present or present less than once a week') were assigned to the non-voice-hearing group, and those selecting items corresponding to a score of 1 (voices occur at least once a week) or above were assigned to the voice-hearing group. The PSYRATS is a valid measure of features of hallucinations and delusions in individuals diagnosed with schizophrenia (Haddock et al., 1999) and its multi-dimensionality is considered a strength (Steel et al., 2007). It has been used in studies requiring an assessment of hallucinations in clinical populations (e.g. Nesbit et al., 2022; Wu et al., 2022).

Developmental Trauma

The Brief Betrayal Trauma Survey (BBTS; Goldberg & Freyd, 2006) is a 12-item measure of trauma experienced in before and after age 18. The items encompass a range of traumatic life events and can be distinguished based on level of betrayal. Eight items relate to interpersonal trauma (both high and low betrayal), including physical and sexual assault, and four items relate to non-interpersonal trauma, such as experiencing a vehicle accident. Respondents indicated how often each experience had happened to them before the age of 18 using a 3-point Likert scale from 0 (never) to 1 (one or two times) to 2 (more than that). This scale is commonly used in studies of individuals reporting features of psychosis (Wu et al., 2022; Pearce et al., 2017).

Attachment

The Psychosis Attachment Measure-Revised (PAM-R; Pollard et al., 2020) is a 23-item measure of attachment styles, revised from the original 16-item measure to include a measure of disorganised attachment. Three subscales pertaining to anxious (8 items, $\alpha = .86$), avoidant (6 items, $\alpha = .83$) and disorganised attachment (9 items, $\alpha = .94$,) comprise an overall measure of insecure attachment. Respondents rated the extent to which each item represents how they relate to key people in their life on a 4-point Likert scale from 0 (not at all) to 3 (very much).

Dissociation

The Černis Felt Sense of Anomaly (ČEFSA) scale (Černis et al., 2021) is a 35-item measure designed to assess seven domains of dissociative experiences, comprised of five items each: 'felt sense of anomaly' ($\alpha = .92$), 'anomalous experience of the self' ($\alpha = .87$), 'anomalous experience of the body' ($\alpha = .92$), 'altered sense of familiarity' ($\alpha = .95$), 'anomalous experience of emotion' ($\alpha = .95$), 'altered sense of connection' ($\alpha = .91$), 'altered sense of agency' ($\alpha = .85$) and 'altered sense of reality' ($\alpha = .91$). Respondents rated how often they have experienced each item over the last two weeks on a 5-point Likert scale from 0 (never) to 4 (always).

Control variable – Paranoia

The Persecution and Deservedness Scale (PaDS; Melo et al., 2009) is a 20-item measure comprised of two subscales of 10 items related to beliefs about persecution ($\alpha = .93$) and deservedness of persecution ($\alpha = .94$). Respondents rated each statement using a 5-point Likert scale from 0 (certainly false) to 4 (certainly true). Where respondents selected items corresponding to scores of 2 (unsure) or above, additional questions were triggered relating to the extent to which the respondent believes they deserve the experience previously rated. Respondents rated these questions using a 5-point Likert scale from 0 (not at all) to 4 (very much).

Procedure

All participants were screened based on inclusion and exclusion criteria to determine eligibility. If eligible, and depending on whether the study was completed online, remotely or face-to-face, participants were shown or read an information sheet. Informed consent was obtained from all participants wishing to proceed.

All participants provided demographic details and completed the questionnaires in the same order: BBTS, PSYRATS, PAM-R, ČEFSA and PaDS, with a short break advised between the PAM-R and ČEFSA. Following this, participants were shown or read debriefing information, including a list of supportive organisations. All data were collected using a consistent process with identical instructions; where participants had questions, these were answered with no reference to specific hypotheses. No participants were incentivised for their participation.

Results

All data was entered into IBM SPSS Statistics (Version 29) for analysis. In total, 216 individuals accessed the study online, and eight people via either the phone, video call or face-to-face. Ninety-eight incomplete data sets were destroyed – further details available in Appendix M. Owing to a technical error, one item from the disorganised subscale ('I often freeze when I get close to someone') on the PAM-R was missing for 91 participants who had participated online. Based on recommendations that imputation can be used where there is a high proportion of observed scores, inter-item correlations are similar and where there is high internal consistency (Graham, 2012; 2009) a score for the missing item was imputed.

The normal distributions of the mean scores for all variables, including each individual subscale, was assessed using the Kolmogorov-Smirnov test and visual inspection of Q-Q plots. Only insecure attachment was normally distributed, and only dissociation was responsive to transformation. All remaining variables were skewed and/or kurtosed. Outlying scores for all variables were examined using box plots, with each case followed up with an inspection of scores across measures. Based on an absence of clear evidence that outlying scores did not reflect natural variation in the population, no outliers were removed.

Preliminary analysis

A combination of independent samples t-tests and Mann-Whitney-U tests were used to examine the preliminary hypotheses. Owing to a normal distribution of scores and homogeneity of variance, an independent samples t-test was used to examine levels of dissociation and insecure attachment. Compared to the dissociation scores for non-voice-hearers ($M = 28.13,\ SD = 23.08$), the scores for voice-hearers ($M = 73.81,\ SD = 35.62$) were significantly higher, $t(112) = 7.97, p < .001, 95\%$ CI $[2.60 - 4.32]$. Similarly, compared to the insecure attachment scores for non-voice-hearers ($M = 30.76, SD = 13.79$), the scores for voice-hearers ($M = 35.63, SD = 15.79$) were significantly higher, $t(112) = 1.75\ , p = .041, 95\%$ CI $[-.64 - 10.4]$.

Owing to non-normal distributions as well as differences in the shape of distributions of scores for interpersonal childhood trauma and disorganised attachment, the difference in the distributions of scores for voice-hearing and non-voice hearing groups were examined using the Mann-Whitney-U test. Interpersonal trauma scores for voice-hearers ($Median = 6$) were higher than for non-voice-hearers ($Median = 1$), and the difference in distributions was

statistically significant, $U = 804.5, p < .001$, 95% CI$[.200 - .500]$. Similarly, the disorganised attachment scores for voice-hearers $(Median = 13.00)$ were higher than for non-voice-hearers $(Median = 5.63)$, and the difference in distributions was statistically significant, $U = 698.5, p < .001, 95\%$ CI $[5.63 - 10.5]$.

All preliminary hypotheses were supported and based on this, exploratory comparisons were made between groups on the individual subscales comprising each measure, the findings from which can be seen in Table 1. Both mean and median values are presented for ease of interpretation. The Bonferroni correction was applied to *p*-values of exploratory tests to control for multiple comparisons. The scores for overall childhood trauma, non-interpersonal childhood trauma, the subscales of the ČEFSA, anxious attachment, persecution and deservedness were significantly higher for voice-hearers, compared to non-voice-hearers. Only the difference in scores avoidant attachment were statistically non-significant.

Table 1 Measures of central tendency for voice-hearing and non-voice-hearing groups alongside associated comparisons

	Voice-hearing (*n*=47)		Non-voice-hearing (*n*=67)		Between-groups difference (95% Cis)	Estimated effect size^
	Mean (SD)	Median	Mean (SD)	Median		
Total Trauma**	6.70 (4.35)	7.00	2.84 (2.73)	2.00	*U*=754.5, *p*<.001, (2.00-5.00)	$r^2 = 0.19$
Interpersonal trauma**	5.49 (3.74)	6.00	2.31 (2.41)	1.00	*U*=804.5, *p*<.001, (2.00-5.00)	$r^2 = 0.18$
Non-interpersonal trauma*	1.21 (1.21)	1.00	.52 (.81)	0.00	*U*=1020.5, *p*=.0004, (0.00-1.00)	$r^2 = 0.11$
Total Dissociation**	73.81 (35.62)	73.00	28.13 (23.08)	25.00	*t*(112)=7.97, *p*<.001 (2.60-4.32)	$d =$ 1.5
Felt Sense of Anomaly**	11.51 (4.42)	11.00	5.42 (4.20)	5.00	*U*=519.5, *p*<.001, (5.00-8.00)	$r^2 = 0.32$
Anomalous Experience of the Self**	8.32 (5.32)	7.00	3.00 (3.27)	2.00	*U*=616.5, *p*<.001, (3.00-6.00)	$r^2 = 0.27$
Anomalous Experience of the Body**	8.09 (5.68)	7.00	2.30 (3.12)	1.00	*U*=596, *p*<.001, (3.00-7.00)	$r^2 = 0.29$
Altered Sense of Familiarity**	7.45 (5.27)	8.00	1.19 (2.01)	0.00	*U*=410, *p*<.001, (4.00-8.00)	$r^2 = 0.42$
Anomalous Experience of Emotion**	9.89 (53.5)	11.00	4.03 (4.75)	2.00	*U*=638, *p*<.001, (4.00-9.00)	$r^2 = 0.26$
Altered Sense of Connection**	10.53 (4.96)	10.00	4.72 (3.99)	3.00	*U*=583.5, *p*<.001, (4.00-8.00)	$r^2 = 0.29$
Altered Sense of Agency**	9.83 (4.74)	10.00	4.96 (3.63)	5.00	*U*=649, *p*<.001, (4.00-7.00)	$r^2 = 0.25$
Altered Sense of Reality**	8.19 (5.52)	8.00	2.52 (3.19)	1.00	*U*=606.5, *p*<.001, (4.00-8.00)	$r^2 = 0.28$
Total Insecure attachment*	35.63 (15.79)	37.63	30.76 (13.79)	30.88	*t*(112)=1.75, *p*=.041, (-.64-10.40)	$d =$ .33
Anxious*	14.47 (5.88)	16.00	11.03 (6.07)	11.00	*U*=1046.5, *p*=.002, (1.00-6.00)	$r^2 = 0.08$
Avoidant	11.64 (3.88)	12.00	9.46 (4.38)	9.00	*U*=1110, *p*=.007, (1.00-4.00)	$r^2 = 0.06$
Disorganised**	14.56 (7.81)	13.00	6.72 (5.81)	5.63	*U*=698.5, *p*<.001, (5.63-10.5)	$r^2 = 0.22$
Persecution (paranoia)**	27.51 (9.76)	30.00	15.25 (10.33)	14.00	*U*=602, *p*<.001, (9.00-17.00)	$r^2 = 0.28$
Deservedness**	15.45 (11.69)	14.00	5.00 (6.75)	2.00	*U*=746.5, *p*<.001, (5.00-14.00)	$r^2 =$ 0.20

^Effect size calculated for Mann-Whitney U tests based on the division of squared standardised scores by the square-root of the sample (Fritz, Morris & Richler, 2011)

* Difference is significant at the .05 level (*p*=.004)

**Difference is significant at the <.001 level (*p*<.0.00007)

Primary analysis

The primary hypothesis was assessed using a hierarchical binomial logistic regression, wherein paranoia and demographics requiring control were entered into the first block, followed by non-interpersonal childhood trauma in the second block and interpersonal childhood trauma in the third block. The assumption of linearity of the continuous independent variables with respect to the logit transformation of the dependent variable was assessed and satisfied (Box & Tidwell, 1962). Results for both regression models can be seen in Table 2.

After controlling for effects of confounders, the regression model for non-interpersonal childhood trauma was statistically significant and correctly classified 80.7% of cases. The regression model for interpersonal childhood trauma was also statistically significant and correctly classified 86% of cases. The model change after adding interpersonal childhood trauma to the effects of confounders and non-interpersonal trauma was statistically significant, $p = .01$, indicating that adding interpersonal trauma significantly increased the model's predictive capacity. Although the addition of interpersonal childhood trauma rendered the contribution of non-interpersonal childhood trauma statistically non-significant, $\beta = .420(.297), p = .16$, the value for the regression weight increased. This suggests that interpersonal trauma may add to the model, and that the effects of interpersonal and non-interpersonal trauma may overlap.

The final model suggests that increased interpersonal trauma is associated with an increased chance of hearing voices, though the specific values related to this increase should be treated with caution owing to the characteristics of the raw data in terms of skewness, kurtosis and

normality. Overall, these findings support the hypothesis that after controlling for non-interpersonal trauma, interpersonal childhood trauma will be a significant predictor of voice-hearing, though it is acknowledged that the significance of this effect was marginal, $p = .04$, and there could be some overlap in the effects of interpersonal and non-interpersonal trauma.

Secondary analysis

Mediation analysis was performed using the PROCESS macro for SPSS (Hayes, 2017). The relationships between predictor, mediation and outcome variables were assessed using Spearman's rank correlation, the results of which are shown in Table 3. Though relationships are not required to be significant to run mediation, the predictor variables must be related to the mediator and the mediator must be related to the outcome variable (Hayes, 2017). As groups significantly differed on persecution (paranoia), degree-level education, AS/A-Level education and having no formal qualifications, and marginally significantly differed on age, these variables were included as covariates in the mediation model, with categorical variables dummy-coded. Where interpersonal childhood trauma was included in a model, non-interpersonal trauma was also controlled for. Confidence intervals for the indirect effects were produced based on 5000 bootstrapped samples (Preacher & Hayes, 2004). Mediation was concluded where confidence intervals did not include the value of 0.

The outcomes of mediation analyses are shown in Table 4, with path diagrams for all models shown in Appendix N. As predicted, dissociation mediated the relationship between disorganised attachment and voice-hearing frequency, with the indirect effect not holding for overall insecure attachment. Contrary to prediction, the hypothesis that disorganised attachment would mediate the relationship between interpersonal childhood trauma and

voice-hearing frequency was not supported. Based on findings from these models, an exploratory mediation analysis determined that disorganised attachment mediated the relationship between interpersonal childhood trauma and dissociation.

Table 2 Regression models

	Model $\boldsymbol{X^2(df)}$	$\boldsymbol{p}$	Block $\boldsymbol{X^2(df)}$	$\boldsymbol{p}$	Nagelkerke $\boldsymbol{r^2}$	$\boldsymbol{\beta(SE)}$	$\boldsymbol{p}$	Exp(B) (95% Cis)	Classi-fication
Non-interpersonal model	$X^2(8) = 61.36$	$< .001$	$X^2(1) = 5.960$	$.015$	$.56$	$\beta(.275) = .658$	$.017$	$1.93\ (1.13 - 3.31)$	80.7% correct
Interpersonal model	$X^2(6) = 65.77$	$< .001$	$X^2(1) = 4.42$	$.01$	$.59$	$\beta(.094) = .193$	$.040$	$1.21\ (1.01 - 1.46)$	86% correct

Table 3 Spearman's rank correlations between predictor, mediator and outcome variables and co-variates

	1	2	3	4	5	6	7	8	9	10	11	12
1.Voice-hearing frequency	-	.41**	.16	.46**	.58**	.52**	.-37**	.29**	.33**	-.22*	.22*	.23*
2.Interpersonal childhood trauma		-	.06	.55**	.54**	.45**	-.06	.02	.16	-.06	.08	.12
3.Insecure attachment			-	.08	.22*	.11	-.05	.05	.03	-.17	.16	.07
4.Disorganised attachment				-	.65**	.69**	-.18	.1	.17	-.08	.14	.03
5.Dissociation (sqrt)					-	.69**	-.14	.19*	.08	-.18	.16	-.02
6. Persecution (paranoia)						-	-.24**	.19	.18	-.08	.06	.01
7. Degree-level education							-	-.60*	-.43*	.19*	-.13	-.20*
8. AS/A-Level education								-	-.08	.01	.004	.004
9. No qualifications									-	-.21*	.07	.21*
10. Aged between 26-34										-	-.27*	-.27*
11. Aged between 45-54											-	-.1
12. Aged between 55-64												-

*Significant at the .05 level
**Significant at the .01 level

Table 4 Mediation analysis

	β [95% Cis]	t	p	r^2	ab [95% BCIs]
Model 1: Interpersonal trauma (x), disorganised attachment (m), voice-hearing frequency (y)					$.02\ [-.01 - .05]$
Path *a*	$\beta = .80\ [.44 - 1.17]$	4.44	$< .001$	.58	
Path *b*	$\beta = .02\ [-.02 - .06]$	1.02	.31	.46	
Path *c* (total effect)	$\beta = .08\ [.001 - .16]$	2.01	.04	.46	
Model 2: Disorganised attachment (x), dissociation (m), voice-hearing frequency (y)					$.02\ [.01 - .05]$*
Path *a*	$\beta = .14\ [.07 - .20]$	4.14	$< .001$	.58	
Path *b*	$\beta = .17\ [.05 - .28]$	2.94	.004	.48	
Path *c* (total effect)	$\beta = .04\ [.002 - .08]$	1.87	.06	.44	
Model 3: Insecure attachment (x), dissociation (m), voice-hearing frequency (y)					$.003\ [-.001 - .01]$
Path *a*	$\beta = .02\ [-.009 - .04]$	1.29	.19	.51	
Path *b*	$\beta = .181\ [.08 - .29]$	3.46	$< .001$	.48	
Path *c* (total effect)	$\beta = .0003\ [-.01 - .02]$	.046	.96	.42	
Model 4: Interpersonal trauma (x), disorganised attachment (m), dissociation (y)					$.08\ [.02 - .17]$*
Path *a*	$\beta = .80\ [.44 - 1.17]$	4.45	$< .001$	.58	
Path *b*	$\beta = .10\ [.03 - .17]$	2.91	.005	.60	
Path *c* (total effect)	$\beta = .23\ [.01 - .36]$	3.37	.001	.57	

*Significant mediation

Discussion

This study aimed to examine the specificity of the role of interpersonal childhood trauma compared to non-interpersonal childhood trauma in relation to voice-hearing. In line with previous studies, findings indicated that voice-hearers had significantly higher levels of interpersonal childhood trauma, including physical, sexual and emotional abuse (Begemann et al., 2022; Nesbit et al., 2022; Dorahy et al., 2009; Offen et al., 2003). Increased levels of non-interpersonal and interpersonal childhood trauma corresponded to an increase in the chance of voice-hearing, though the inclusion of interpersonal trauma in the model significantly increased the predictive capacity of the model and rendered the contribution of non-interpersonal trauma statistically non-significant.

Crucially, the finding that childhood trauma of an interpersonal nature may be more critical to the aetiology of voice-hearing compared to non-interpersonal childhood trauma, is in line with one route from early adversity to voice-hearing proposed by the CAV (Berry et al., 2017). However, findings also indicated that the inclusion of interpersonal trauma increased the contribution of non-interpersonal trauma to the overall model, which suggests that there could be an overlap in the effects of interpersonal and non-interpersonal trauma. Theoretically, this might indicate that the relational definition of developmental trauma employed by the CAV may not capture the range of experiences that could be relevant to the development of voice-hearing and therefore, might benefit from expansion. It is arguable that a range of experiences could be captured by the reference to ‘experiences of trauma outside the early caregiving environment’ (see Figure 1), though it is unclear whether these can be interpersonal, non-interpersonal or both. Owing to the centrality of trauma and attachment in the model, it is therefore recommended that the CAV could be updated to specify whether the

traumatic experiences referenced are understood to be interpersonal and/ or non-interpersonal in nature and based on this, the implications for disorganised attachment. Related to the implied stability of attachment over time, it may also be useful to provide clarity on the developmental stages each part of the vulnerability model pertains to. This could clarify how different traumatic experiences might be measured and if it is important to distinguish between trauma experienced at different life stages.

That voice-hearers had significantly higher levels of dissociation compared to individuals who did not hear voices is also in line with the extant literature (Varese et al., 2012), and in its employment of the ČEFSA, the current study extends previous research to show that established relationships between dissociation and voice-hearing hold for the 'felt sense of anomaly' thought to underlie developments in the phenomenological understanding of dissociation (Černis et al., 2021). Levels of insecure attachment, and more specifically, the disorganised pattern, were higher in voice-hearers, which also reflects previous findings that in comparison to anxious and avoidant patterns, a disorganised attachment is associated with interpersonal trauma and hallucinations (Bucci et al., 2017).

The relationship between attachment and voice-hearing was mediated by dissociation only where the disorganised pattern was specified, as opposed to the broader concept of attachment insecurity. Furthermore, and contrary to prediction, disorganised attachment did not mediate the relationship between interpersonal childhood trauma and voice-hearing frequency. Based on recommendations for the necessary sample sizes for mediation analysis to detect indirect effects of varying sizes (Fritz & MacKinnon, 2007), statistically non-significant findings may be due to a lack of statistical power. However, as disorganised attachment mediated the relationship between interpersonal trauma and dissociation, and

dissociation and voice-hearing frequency, these findings could also reflect a complex network of psychological processes underlying the relationship between interpersonal childhood trauma and voice-hearing.

Specifically, these models illustrate the potential centrality of dissociation and disorganised attachment in the aetiology of voice-hearing, an idea supported by previous research (Bloomfield et al., 2021; Pilton et al., 2016; Sitko et al., 2014). Liotti (2004) explains that disorganised attachment reflects an infant's desire to simultaneously seek safety and avoid distress from their caregivers, thought to result in a disturbance to the self-concept (van der Kolk, 2014; Fonagy & Bateman, 2005; Allen et al., 1997), which has since been implicated in relationship between childhood trauma and psychosis (Evans et al., 2015). Following attachment theory (Bowlby, 1982), interpersonal trauma in childhood may undermine the safety required for the development of a healthy internal working model of the self as related to others. Children may become fearful of connecting with others and the world and instead find safety in disconnection, which may in turn, increase the risk of voice-hearing (Berry et al., 2017). This suggests that there may be some utility in distinguishing between interpersonal and non-interpersonal childhood trauma in the clinical assessment and psychological formulation of voice-hearing, particularly where dissociation and issues of attachment are indicated.

Limitations and directions for future research

This study has several limitations. Though this analysis was theoretically-grounded, self-reported measures, employed within the cross-sectional design of the current study, limits the extent to which inferences can be made about directionality, causality and specifically,

whether the proposed route to voice-hearing can be extrapolated across the lifespan. In particular, the CAV is based on an understanding of early attachment influencing adulthood attachment, but was unclear whether participants' attachment styles may be reflective of their childhood and indeed, could have been affected by relational experiences outside childhood. As aforementioned, this is further complicated by a lack of clarity on the developmental stages each element of the CAV relates to. Though desirable, longitudinal research is logistically and ethically challenging in this area and therefore, researchers may benefit from a consideration of ways to adapt and develop known methodologies, perhaps via a systematic review and in consultation with experts by experience.

The measurement of trauma as a continuous variable introduces complexity to the interpretation of findings, particularly owing to the non-specificity of scale used by the BBTS. One individual experiencing emotional abuse 'once or twice' compared to another individual experiencing physical abuse 'more than that' does not necessarily allow distinctions to be drawn as to the extent of trauma exposure. The predictive capacity of non-interpersonal trauma may have also been limited by the range of events specified, though the consideration of additional experiences not covered by the measure, such as neglect, may introduce further complexity in distinguishing between interpersonal and non-interpersonal trauma. These issues reflect longstanding challenges in the measurement of trauma, not least given the role of subjective appraisal (Weathers & Keane, 2007), and highlight a need for researchers specify any parameters drawn in definitions and measurement – similar to suggestions of distinguishing between presence and characteristics of hallucinations as an outcome, for example (Nesbit et al., 2022). Further research may also usefully investigate how childhood trauma is assessed and scaled, particularly in the context of multiple adversity and retrospective reporting.

Another limitation relates to questionnaire administration. All participants completed the BBTS first based on advice from experts by experience that participants' anticipation of the trauma measure may affect their responses to other measures. However, it is also arguable that any distress incurred by the BBTS could have also affected responses to the succeeding measures. Therefore, the extent to which scores for voice-hearing, attachment, dissociation and paranoia accurately captured the experiences of participants is a threat to the validity of findings. In future, researchers may usefully consider the impact of the order of questionnaire administration and sharing the level of information required for trauma-specific measures.

A further limitation is the recruitment of a non-NHS clinical sample, largely through voice-hearing groups organised self-selectively. A measurement of the stability of voice-hearing was attempted in the current study via an assessment of voices at two time points, though attrition of approximately 80% precluded any meaningful analysis. Complicating factors such as diagnosis and access to treatment likely affected participation, also reflected in the limited gender and ethnic diversity in the sample, which effectively limits the generalisability of findings. Many studies have taken similar approaches to the recruitment of clinical samples outside of healthcare services and indeed, recruitment within services brings different challenges, such as distinguishing the spectrum of diagnoses associated with voice-hearing. Future research may usefully consider collecting data pertaining to diagnosis, use of medication/ therapeutic treatments and current mental health status, both for clinical and general population samples to further contextualise findings.

Conclusions

Although voice-hearing was associated with higher levels of both interpersonal and non-interpersonal childhood trauma, only interpersonal trauma was a significant predictor, with higher numbers of exposures corresponding to a higher chance of hearing voices. Exploratory mediation analyses were suggestive of a complex network of psychological processes underlying the relationship between interpersonal childhood trauma and voice-hearing, including disorganised attachment and dissociation, though this analysis was limited by the cross-sectional design and reduced statistical power. Findings are in line with one route to voice-hearing proposed by the CAV and extend previous research in terms of specificity, though are limited by issues of design, measurement and recruitment, characteristic of the extant literature and should therefore be treated with caution. Future research may consider reviewing current approaches to these methodological issues and working with experts by experience to expand the capacity for directionality and causality in this field.

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Executive Summary

Hearing voices that others do not hear is a common human experience, which may or may not cause people distress. Research has shown that traumatic experiences in childhood are related to voice-hearing, with some studies distinguishing between types of abuse experienced as children as related to specific features of voice-hearing in adulthood. Researchers have attempted to explain these findings by drawing on theoretical understandings of neurological, psychological, social and cognitive development in the construction of potential pathways that may explain the link between childhood trauma and voice-hearing.

Derived from studies investigating the aspects of experiences that contribute to vulnerability to, and maintenance of, voice-hearing experiences, the Cognitive-Attachment Model of Voice-hearing proposes one developmental route to voices based on interpersonal trauma, disorganised attachment and dissociation. Interpersonal childhood trauma typically refers to experiences of physical, sexual and emotional abuse, occurring in either close relationships, defined as 'high betrayal', and/ or in relationships with people not so close, defined as 'low betrayal'. Such experiences are thought to affect the way in which children think, feel and act in relationships, characterised by a wish to seek safety and avoid distress. Some researchers have suggested that the overwhelming feelings associated with this conflict result in a disconnection from the others and the world, which might affect the way that thoughts, feelings and experiences are integrated together – often referred to as dissociation. The Cognitive-Attachment model suggests that voices may represent dissociated parts of the self, brought about and worsened by a disorganised attachment that had developed from traumatic experiences of caregiving.

The explanation proposed by the Cognitive-Attachment model is based on traumatic experiences in childhood being of an interpersonal nature, though research has not yet compared interpersonal and non-interpersonal trauma as predictors of voice-hearing. As such this study aimed to examine the specific role of interpersonal trauma compared to non-interpersonal trauma in relation to voice-hearing by comparing the experiences of individuals who hear voices with individuals who do not hear voices. 114 individuals, comprised of 47 voice-hearers and 67 non-voice-hearers were invited to complete a series of questionnaires related to voice-hearing, childhood trauma, dissociation and attachment either online, via the telephone or face-to-face. Individuals were recruited via three routes: social media, Hearing Voices groups and via a research register held by King's College London linked to studies of unusual experiences.

Results indicated that in comparison to non-voice-hearers, voice-hearers had higher levels of interpersonal childhood trauma, dissociation and disorganised attachment. After controlling for confounding variables, including paranoia, age and education, interpersonal childhood trauma was a statistically significant predictor of voice-hearing over and above non-interpersonal trauma, with greater exposure corresponding to an increased likelihood of hearing voices. Statistical analysis indicated that there may also be some overlap in the effects of interpersonal and non-interpersonal trauma.

Further analysis highlighted relationships between trauma, dissociation and attachment and furthermore, supported findings from previous research which suggests that a complex mechanism of psychological processes underlie the relationship between childhood trauma and voice-hearing – such as that outlined by the Cognitive-Attachment model. However, this

study indicates that it might be useful to clarify some parts of the model to specify whether traumatic experiences are interpersonal or non-interpersonal and outline the developmental stages implied in the model, particularly around attachment.

Findings from this study must be understood within a broader assessment of methodological limitations, most notably related to design, measurement and recruitment. The measurement of key concepts at the same point in time limits the extent to which conclusions can be made about causality and the direction of the effects seen. Trauma is inherently challenging to measure, particularly as the extent to which an individual may be affected by an experience will depend on their own subjective appraisal of the event. In addition, indicating the number of traumatic events experiences may not necessarily allow distinctions to be made as to level and impact of exposure. The approach taken to the recruitment of voice-hearers also introduces some additional limitations to the generalisability of findings, specifically to those who do not seek peer support, research opportunities, or cannot access the internet and/ or technology. The limited gender and ethnic diversity of the sample also limits the extent to which findings may be applicable to individuals with marginalised identities under-represented in research, such as people of the global majority and the transgender population, for example.

Taken altogether, the findings from this study indicate that there may be some utility in healthcare professionals distinguishing interpersonal and non-interpersonal trauma when making assessments of individuals who hear voices. The potential role of dissociation and disorganised attachment also provide some useful ideas for clinicians working with individuals who might wish to explore ways their voices might have developed. Attributing causality should be approached tentatively, and additional thought should be given to the

individual circumstances and identities of those hearing voices, particularly where these are not reflected in research samples. It is suggested that future research may usefully investigate ways of adapting and developing known methodologies and measurement, such as in terms of how trauma is assessed, and especially in cases of multiple adversity.

Connecting Narrative

Throughout my education and career so far, I have cultivated an interest in the long-term impact of early adversity, and specifically of trauma and abuse experienced in childhood. Not only is this related to my professional experience of supporting individuals affected by early adversity, but also to my personal experiences. Reflection upon the aspects of identity and experience that shape perspective and position is a key aspect of the scientist-practitioner model underlying clinical psychology. During my journey to and through training, I have reflected upon parts of my experience that might have not only shaped my perspective of difficulty and distress, but my own vulnerability. As a practitioner with lived experience, I have often been intrigued by the false distinction between those providing and those accessing services, as if there is an imaginary line, rather than a set of circumstances. Though I initially found myself overwhelmed by the choice of topics I could research, my projects were borne from my interest in the multifinality of adversity, that is, the idea that similar life experiences may be linked to multiple and varying outcomes.

Systematic Review of the Literature

I was drawn to the relationship between developmental trauma, dissociation and hallucinations based on my experience working on an acute inpatient ward. Having completed reviews of clinical documents, I noted some similarities in the developmental histories of those experiencing hallucinations across modalities and I was interested in how this could be explained. Although systematic reviews in this area typically provided a comprehensive overview of multiple variables implicated in this relationship, I was curious

as to the depth and specificity of current understanding of individual concepts, particularly where there were some ambiguities in definition.

Undertaking this project showed me the complexity of the literature in this area and I learnt about the importance of clearly-defined research questions, both in terms of feasibility and shaping meaningful conclusions and recommendations. Within this, I noticed the varying ways key concepts could be defined and I learnt a lot by making choices about where to draw parameters. I also enjoyed collaborating with a colleague on this project and I saw how useful the communication skills I have developed from my clinical work could be to the research process. I hope my review is helpful in terms of delineating the role of dissociation in the relationship between developmental trauma and hallucinations, as well as illustrating the importance of deepening and evaluating our understanding of explanatory mechanisms.

Service Improvement Project

This project was partially developed from my interest in the experiences we have that shape our relationship to help, specifically where 'help' can be considered both a protective and a perpetuating factor in psychological distress. It was a privilege to have the opportunity to hear deeply personal stories from parents whose experiences of significant adversity had left them without the internal and external resources required to care for their much-loved children and contributed to their marginalisation and vilification by society. I saw parents' distress mirrored in the frustration of professionals who, owing to continued under-resourcing of social care, also lacked the internal and external resources to provide the support they desperately wanted to give parents. These observations have left me reflecting on the ways in which help is conceptualised and provided in the NHS, as well as for whom this is accessible.

This project also highlighted to me how values of compassion, warmth and non-judgement are thought to be crucial an interactional level, e.g. in the therapy room, and perhaps less often at a system and service level, e.g. referral criteria.

I faced several challenges during this project. The irony of my being an NHS professional, attempting to reach people whose circumstances make it difficult to engage with services was not lost on me! Having embraced flexibility and creativity to engage both parents and professionals, I learned that the skills I may have usually drawn on in my clinical work were very useful in adapting to the needs of my interviewees. The volume of data I had to work with was often overwhelming and my note-taking throughout the analysis stage helped me make sense of indeed, how I was making sense of the data. I learnt a lot about self-reflexivity during this process, particularly the importance of holding in mind my lenses and positionality as I coded transcripts and grouped themes.

Theoretically-Driven Research Project

This project was one of the more challenging projects I have worked on, specifically in terms of recruitment. To overcome these challenges, I learned to sit with the discomfort I felt in repeatedly contacting people in the voice-hearing community. Having visited several Hearing Voices groups, I have developed my skills in public-speaking, something with which I have historically struggled. These experiences enabled greater collaboration with stakeholders, whose feedback also helped me improve the accessibility of my study. I am reminded of one individual who participated over the phone as they struggled to read who might have otherwise been excluded.

Taken alongside the challenges I overcame in recruiting for my SIP, I have considered that the wide-ranging difficulties conferred by early adversity may also impact individuals' ability to engage with research upon those same difficulties. Based on these experiences, I now find myself interested in working with experts by experience to think about how methodologies and recruitment can be shaped to be more inclusive and flexible.

Final thoughts

Overall, I am pleased with my projects and I have learned a lot from them. My SRL and TDRP reflected my interest in improving the understanding of how the relationship between early adversity and outcomes typically associated with severe and enduring illness can be explained. My SIP reflected my interest in how both theoretical, empirical and experiential information can be used to adapt a service to support people where adversity had become intergenerational and a source of significant marginalisation. I hope the outcomes described provide a useful source of reflection for practitioners seeking to understand and further develop our understanding of the impact of early adversity.

Acknowledgements

Firstly, I wish to acknowledge and thank all the of the people who so generously shared what are undoubtedly some of their most painful personal experiences as part of their participation in my projects, ultimately with the intention of helping people who go through similar adversity. It was a privilege to meet so many of you face-to-face, hear your stories, admire your incomparable abilities to tell it like it is and how it should be, and share in your desire for improvement in the understanding and support of people who experience tremendous hardship. Thank you for the cake, the feedback and also for all the book recommendations – my 'to be read' list is brimming with ideas for when I eventually get off the runaway train that is the DclinPsych.

To my research supervisors, Craig Steel, Ciorsdan Anderson and Nicola Connolly, and my course tutor, Matthew Hotton – I am so grateful for your attentive, thoughtful and thorough guidance as I have navigated the unique challenges each of these projects has presented. Not only have you all consistently supported my growth as a researcher, your acknowledgement and support of the impact of the work required for these projects has been greatly valued. To my consultants, Katherine Berry and Simon McCarthy-Jones, and the experts by experience who also gave their time and expertise – thank you for sharing insights that shaped the foundations of my research.

To my 'Fun Oxfordy' friends, Eimear, Ellie, all the Emmas, Fi, Mariann and Stacey, who have shared in what has sometimes felt like a journey of a perpetual confusion, I am so pleased that we have nearly reached our destination. Thank you for the lunchtime chats over lukewarm toasties, piloting all the surveys, laughing over pub quizzes and pizza, swapping

reassuring voice notes, jointly losing laser tag to camo-clad 14 years-olds, and collectively deciphering the statistical conundrums that baffle us all at 10pm on a Thursday. I am inspired by, and appreciate, you all and I am so thankful for your wit and wisdom; I know I have found some friends for life, and I look forward to hearing and sharing where our journeys take us next.

Lastly, to Mehde, I could not have achieved any of this without your unwavering patience, gentleness and thoughtfulness. Thank you for holding me up throughout the last three years. You always made sure I ate something when I came home late, filled countless hot water bottles, turned the lights on as I typed from day to night and celebrated every win, no matter how small. I feel very lucky that you support my commitment to my work whilst encouraging me to find who I am outside of the world of psychology. I am excited for all of our future plans, and I am looking forward having more time together as this journey comes to an end and new ones begin.

Appendices

Appendix A: Instructions to Authors for SRL

PREPARATION

Queries
For questions about the editorial process (including the status of manuscripts under review) or for technical support on submissions, please visit our Support Center.

Peer review
This journal operates a single anonymized review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. Editors are not involved in decisions about papers which they have written themselves or have been written by family members or colleagues or which relate to products or services in which the editor has an interest. Any such submission is subject to all of the journal's usual procedures, with peer review handled independently of the relevant editor and their research groups. More information on types of peer review.

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It is important that the file be saved in the native format of the word processor used. The text should be in single-column format. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the word processor's options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. When preparing tables, if you are using a table grid, use only one grid for each individual table and not a grid for each row. If no grid is used, use tabs, not spaces, to align columns. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). Note that source files of figures, tables and text graphics will be required whether or not you embed your figures in the text. See also the section on Electronic artwork. To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.

Article structure
Manuscripts should be prepared according to the guidelines set forth in the most recent publication manual of the American Psychological Association. Of note, section headings should not be numbered.

Manuscripts should ordinarily not exceed 50 pages, including references and tabular material. Exceptions may be made with prior approval of the Editor in Chief. Manuscript length can often be managed through the judicious use of appendices. In general the References section should be limited to citations actually discussed in the text. References to articles solely included in meta-analyses should be included in an appendix, which will appear in the on line version of the paper but not in the print copy. Similarly, extensive Tables describing study characteristics, containing material published elsewhere, or presenting formulas and other technical material should also be included in an appendix.
Authors can direct readers to the appendices in appropriate places in the text.

It is authors' responsibility to ensure their reviews are comprehensive and as up to date as possible (at least to 3 months within date of submission) so the data are still current at the time of publication. Authors are referred to the PRISMA Guidelines (http://www.prisma-statement.org/) for guidance in conducting reviews and preparing manuscripts. Adherence to the Guidelines is not required, but is recommended to enhance quality of submissions and impact of published papers on the field.

Appendices
If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

Essential title page information
Title. Concise and informative.
Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible. Note: The title page should be the first page of the manuscript document indicating the author's names and affiliations and the corresponding author's complete contact information.

Author names and affiliations.
Where the family name may be ambiguous (e.g., a double name), please indicate this clearly. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name, and, if available, the e-mail address of each author within the cover letter.

Corresponding author.
Clearly indicate who is willing to handle correspondence at all stages of refereeing and publication, also post-publication. Ensure that telephone and fax numbers (with country and area code) are provided in addition to the e-mail address and the complete postal address.

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If an author has moved since the work described in the article was done, or was visiting at the time, a "Present address"' (or "Permanent address") may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

Highlights
Highlights are mandatory for this journal as they help increase the discoverability of your article via search engines. They consist of a short collection of bullet points that capture the novel results of your research as well as new methods that were used during the study (if any). Please have a look at the examples here: example Highlights.

Highlights should be submitted in a separate editable file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point).

Abstract
A concise and factual abstract is required (not exceeding 200 words). This should be typed on a separate page following the title page. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separate from the article, so it must be able to stand alone. References should therefore be avoided, but if essential, they must be cited in full, without reference to the reference list.

Graphical abstract
Although a graphical abstract is optional, its use is encouraged as it draws more attention to the online article. The graphical abstract should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: Please provide an image with a minimum of 531 × 1328 pixels (h × w) or proportionally more. The image should be readable at a size of 5 × 13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. You can view Example Graphical Abstracts on our information site.

Keywords
Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

Abbreviations
Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Such abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article.

Acknowledgements
Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

Formatting of funding sources
List funding sources in this standard way to facilitate compliance to funder's requirements:

Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa].

It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

If no funding has been provided for the research, it is recommended to include the following sentence: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Footnotes
Footnotes should be used sparingly. Number them consecutively throughout the article. Many word processors can build footnotes into the text, and this feature may be used. Otherwise, please indicate the position of footnotes in the text and list the footnotes themselves separately at the end of the article. Do not include footnotes in the Reference list.

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• Number the illustrations according to their sequence in the text. • Use a logical naming convention for your artwork files.
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• Submit each illustration as a separate file.
• Ensure that color images are accessible to all, including those with impaired color vision.

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You are urged to visit this site; some excerpts from the detailed information are given here.
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EPS (or PDF): Vector drawings, embed all used fonts.
TIFF (or JPEG): Color or grayscale photographs (halftones), keep to a minimum of 300 dpi.
TIFF (or JPEG): Bitmapped (pure black & white pixels) line drawings, keep to a minimum of 1000 dpi.
TIFF (or JPEG): Combinations bitmapped line/half-tone (color or grayscale), keep to a minimum of 500 dpi.
Please do not:
• Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); these typically have a low number of pixels and limited set of colors;
• Supply files that are too low in resolution;
• Submit graphics that are disproportionately large for the content.

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Please submit tables as editable text and not as images. Tables can be placed either next to the relevant text in the article, or on separate page(s) at the end. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules and shading in table cells.

References
Citations in the text should follow the referencing style used by the American Psychological Association. You are referred to the most recent publication manual of the American Psychological Association. Information can be found at https://apastyle.apa.org/

Citation in text
Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

Web references
As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

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This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.

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Where a preprint has subsequently become available as a peer-reviewed publication, the formal publication should be used as the reference. If there are preprints that are central to your work or that cover crucial developments in the topic, but are not yet formally published, these may be referenced. Preprints should be clearly marked as such, for example by

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Reference style

References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters "a", "b", "c", etc., placed after the year of publication. References should be formatted with a hanging indent (i.e., the first line of each reference is flush left while the subsequent lines are indented).
Examples: Reference to a journal publication: Van der Geer, J., Hanraads, J. A. J., & Lupton R. A. (2000). The art of writing a scientific article. Journal of Scientific Communications, 163, 51-59.

Reference to a book: Strunk, W., Jr., &White, E. B. (1979). The elements of style. (3rd ed.). New York: Macmillan, (Chapter 4).

Reference to a chapter in an edited book: Mettam, G. R., & Adams, L. B. (1994). How to prepare an electronic version of your article. In B.S. Jones, & R. Z. Smith (Eds.), Introduction to the electronic age (pp. 281-304). New York: E-Publishing Inc.

[dataset] Oguro, M., Imahiro, S., Saito, S., Nakashizuka, T. (2015). Mortality data for Japanese oak wilt disease and surrounding forest compositions. Mendeley Data, v1. http://dx.doi.org/10.17632/ xwj98nb39r.1

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Supplementary material such as applications, images and sound clips, can be published with your article to enhance it. Submitted supplementary items are published exactly as they are received (Excel or PowerPoint files will appear as such online). Please submit your material together with the article and supply a concise, descriptive caption for each supplementary file. If you wish to make changes to supplementary material during any stage of the process, please make sure to provide an updated file. Do not annotate any corrections on a previous version. Please switch off the 'Track Changes' option in Microsoft Office files as these will appear in the published version.

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Data statement

To foster transparency, we encourage you to state the availability of your data in your submission. This may be a requirement of your funding body or institution. If your data is unavailable to access or unsuitable to post, you will have the opportunity to indicate why during the submission process, for example by stating that the research data is confidential. The statement will appear with your published article on ScienceDirect. For more information, visit the Data Statement page.

Appendix B: Additional submission requirements for SRL

Keywords: developmental trauma, childhood adversity, dissociation, hallucinations

Highlights:

- Dissociation mediates the relationship between childhood trauma and hallucinations.
- Specific pathways between trauma, dissociation and hallucinations are emerging.
- Evidence is limited by methodologies, potential confounders and reporting issues.
- Clearer definitions and comprehensive measurement of dissociation are needed.

Statement 1: Role of funding sources

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Statement 2: Contributors

Authors Jade Elliston and Craig Steel conceptualised and designed the review, with consultative support provided by Simon-McCarthy-Jones in the initial stages. Jade Elliston conducted the literature search, summarised the findings of studies and wrote the first draft of the manuscript. Gurpreet Reen contributed to the literature search by checking samples of titles and abstracts, full texts and rating a sample of papers during quality assessment. Craig Steel and Simon McCarthy-Jones provided contributed to the final draft and all authors approved the manuscript.

Statement 3: Conflict of Interest

The authors declare no conflicts of interest.

Appendix C: Search strategy for SRL

Developmental trauma	**Boolean search strings:** (child*) adj3 (abus* or trauma* or assault* or advers* or 162xploit*) or (sex*) adj3 (abus* or trauma* or assault* or 162xploit* or rape* or molest*) or (phys*) adj3 (abus* or assault* or injur* or beat* or violen*) or (emotion*) adj3 (abus* or trauma*) or (neglect* or maltreat*) or (domestic adj3 violence or abuse) or "intimate partner violence" or "IPV" or (parent*) adj3 (death or separa* or divorce or abandon*) or (foster* or adopt* or "statutory care" or "institutional care") or ("developmental trauma*" or "adverse childhood experiences") **MeSH terms:** "childhood adversity" or adversity or "adverse childhood experiences" or "child abuse" or abandonment or "child neglect" or "domestic violence" or "emotional abuse" or "paedophilia" or "pedophilia" or "physical abuse" or "sexual abuse" or "violent crime" or trauma or "emotional trauma" or "foster care" or "social services" or "foster children" or "protective services" or "family relations" or "family conflict" or "family separation" or "parental death" or "parental absence"
Dissociation	**Boolean search strings:** (dissociat* or depersonalisat* or depersonalizat* or disconnect* or derealisat* or derealizat* or absor*) or ("mental dissociation") **MeSH terms:** dissociation or "consciousness disturbances" or "depersonalization disorder" or "derealization disorder" or "dissociative amnesia" or "dissociative disorders" or "dissociative identity disorder"
Hallucinations	**Boolean search strings:** (hallucin*5) or (auditory adj3 hallucina*5) or (voice* or "hearing voices" or "voice hearing" or "auditory perceptual disorders") or (visual adj3 hallucina*5) or (tactile adj3 hallucina*5) or (olfactory adj3 hallucina*5) or (gustatory adj3 hallucina*5) **MeSH terms:** hallucinations or "perceptual disturbances" or "auditory hallucinations" or "visual hallucinations"

Appendix D: The Standard Quality Assessment Criteria for Evaluating Primary Research Papers (Kmet et al., 2004) – criteria and any additional interpretive guidance agreed-upon by raters JE and GR

Criteria	Guidance
Question or objective sufficiently described? **Yes:** Is easily identified in the introductory section (or first paragraph of methods section). Specifies (where applicable, depending on study design) *all* of the following: purpose, subjects/target population, and the *specific* intervention(s) /association(s)/descriptive parameter(s) under investigation. A study purpose that only becomes apparent after studying other parts of the paper is *not* considered sufficiently described. **Partial:** Vaguely/incompletely reported (e.g. "describe the effect of " or "examine the role of " or "assess opinion on many issues" or "explore the general attitudes"...); *or* some information has to be gathered from parts of the paper other than the introduction/background/objective section. **No:** Question or objective is not reported, or is incomprehensible. **N/A:** Should not be checked for this question.	
Design evident and appropriate to answer study question? (If the study question is not given, infer from the conclusions). **Yes:** Design is easily identified and is appropriate to address the study question / objective. **Partial:** Design and /or study question not clearly identified, but gross inappropriateness is not evident; *or* design is easily identified but only partially addresses the study question. **No:** Design used does not answer study question (e.g., a comparison group is required to answer the study question, but none was used); *or* design cannot be identified. **N/A:** Should not be checked for this question.	**Cross-sectional studies to be given a maximum score of '1' owing to the research question referring to a developmental trajectory that is** most appropriately **assessed prospectively and longitudinally.**
Method of subject selection (and comparison group selection, if applicable) or source of information/input variables (e.g., for decision analysis) is described and appropriate. **Yes:** Described and appropriate. Selection strategy *designed* (i.e., consider sampling frame and strategy) to obtain an unbiased sample of the relevant target population or the entire target population of interest (e.g., consecutive patients for clinical trials, population-based random sample for case-control studies or surveys). Where applicable, inclusion/exclusion criteria are described and defined (e.g., "cancer" – ICD code or equivalent should be provided). *Studies of volunteers:* methods and setting of recruitment reported. *Surveys:* sampling frame/ strategy clearly described and appropriate. **Partial:** Selection methods (and inclusion/exclusion criteria, where applicable)	**Consider bias in undergraduate populations, particularly where exchanging for course credit, and in general populations where incentives were provided.**

are not completely described, but no obvious inappropriateness. Or selection strategy is not ideal (i.e., likely introduced bias) but did not likely seriously distort the results (e.g., telephone survey sampled from listed phone numbers only; hospital based case-control study identified all cases admitted during the study period, but recruited controls admitted during the day/evening only). Any study describing participants only as "volunteers" or "healthy volunteers". *Surveys:* target population mentioned but sampling strategy unclear. **No:** No information provided. *Or* obviously inappropriate selection procedures (e.g., inappropriate comparison group if intervention in women is compared to intervention in men). *Or* presence of selection bias which likely seriously distorted the results (e.g., obvious selection on "exposure" in a case-control study). **N/A:** Descriptive case series/reports.	
Subject (and comparison group, if applicable) characteristics or input variables/information (e.g., for decision analyses) sufficiently described? **Yes:** Sufficient relevant baseline/demographic information clearly characterizing the participants is provided (or reference to previously published baseline data is provided). Where applicable, reproducible criteria used to describe/categorize the participants are clearly defined (e.g., ever-smokers, depression scores, systolic blood pressure > 140). If "healthy volunteers" are used, age and sex must be reported (at minimum). *Decision analyses:* baseline estimates for input variables are clearly specified. **Partial:** Poorly defined criteria (e.g. "hypertension", "healthy volunteers", "smoking"). *Or* incomplete relevant baseline / demographic information (e.g., information on likely confounders not reported). *Decision analyses:* incomplete reporting of baseline estimates for input variables. **No:** No baseline / demographic information provided. *Decision analyses:* baseline estimates of input variables not given. **N/A:** Should not be checked for this question.	
If random allocation to treatment group was possible, is it described? **Yes:** True randomization done – requires a description of the method used (e.g., use of random numbers). **Partial:** Randomization mentioned, but method is not (i.e. it may have been possible that randomization was not true). **No:** Random allocation not mentioned although it would have been feasible and appropriate (and was possibly done). **N/A:** Observational analytic studies. Uncontrolled experimental studies. Surveys. Descriptive case series / reports. Decision analyses.	
If interventional and blinding of investigators to intervention was possible, is it reported?	

Yes: Blinding reported. **Partial:** Blinding reported but it is not clear who was blinded. **No:** Blinding would have been possible (and was possibly done) but is not reported. **N/A:** Observational analytic studies. Uncontrolled experimental studies. Surveys. Descriptive case series / reports. Decision analyses.	
If interventional and blinding of subjects to intervention was possible, is it reported? **Yes:** Blinding reported. **Partial:** Blinding reported but it is not clear who was blinded. **No:** Blinding would have been possible (and was possibly done) but is not reported. **N/A:** Observational studies. Uncontrolled experimental studies. Surveys. Descriptive case series / reports.	
Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported? **Yes:** Defined (or reference to complete definitions is provided) and measured according to reproducible, "objective" criteria (e.g., death, test completion – yes/no, clinical scores). Little or minimal potential for measurement / misclassification errors. *Surveys:* clear description (or reference to clear description) of questionnaire/interview content and response options. *Decision analyses:* sources of uncertainty are defined for all input variables. **Partial:** Definition of measures leaves room for subjectivity, *or* not sure (i.e., not reported in detail, but probably acceptable). *Or* precise definition(s) are missing, but no evidence or problems in the paper that would lead one to assume major problems. *Or* instrument/mode of assessment(s) not reported. Or misclassification errors may have occurred, but they did not likely seriously distort the results (e.g., slight difficulty with recall of long-ago events; exposure is measured only at baseline in a long cohort study). *Surveys:* description of questionnaire/interview content incomplete; response options unclear. *Decision analyses:* sources of uncertainty are defined only for some input variables. **No:** Measures not defined, or are inconsistent throughout the paper. *Or* measures employ only ill-defined, subjective assessments, e.g. "anxiety" or "pain." *Or* obvious misclassification errors/measurement bias likely seriously distorted the results (e.g., a prospective cohort relies on self-reported outcomes among the "unexposed" but requires clinical assessment of the "exposed"). *Surveys:* no description of questionnaire/interview content or response options. *Decision analyses:* sources of uncertainty are not defined for input variables.	**Measures of** all **variables under investigation must be described, with specific response options for scales used, e.g. '0-4 with 0 referring to x and 4 referring to y' for a score of '2'.**

N/A: Descriptive case series / reports.	
Sample size appropriate? **Yes:** Seems reasonable with respect to the outcome under study and the study design. When statistically significant results are achieved for major outcomes, appropriate sample size can usually be assumed, unless large standard errors (SE > 1/2 effect size) and/or problems with multiple testing are evident. *Decision analyses:* size of 166odelled cohort / number of iterations specified and justified. **Partial:** Insufficient data to assess sample size (e.g., sample seems "small" and there is no mention of power/sample size/effect size of interest and/or variance estimates aren't provided). *Or* some statistically significant results with standard errors > 1/2 effect size (i.e., imprecise results). *Or* some statistically significant results in the absence of variance estimates. *Decision analyses:* incomplete description or justification of size of 166odelled cohort / number of iterations. **No:** Obviously inadequate (e.g., statistically non-significant results and standard errors > 1/2 effect size; or standard deviations > _ of effect size; or statistically non-significant results with no variance estimates and obviously inadequate sample size). *Decision analyses:* size of 166odelled cohort / number of iterations not specified. **N/A:** Most surveys (except surveys comparing responses between groups or change over time). Descriptive case series / reports.	
Analysis described and appropriate? **Yes:** Analytic methods are described (e.g. "chi square"/ "t-tests"/"Kaplan-Meier with log rank tests", etc.) and appropriate. **Partial:** Analytic methods are not reported and have to be guessed at, but are probably appropriate. *Or* minor flaws or some tests appropriate, some not (e.g., parametric tests used, but unsure whether appropriate; control group exists but is not used for statistical analysis). *Or* multiple testing problems not addressed. **No:** Analysis methods not described and cannot be determined. *Or* obviously inappropriate analysis methods (e.g., chi-square tests for continuous data, SE given where normality is highly unlikely, etc.). *Or* a study with a descriptive goal / objective is over-analyzed. **N/A:** Descriptive case series / reports.	**Studies to be given a maximum score of '1' where assumptions of statistical tests are not addressed, particularly where parametric tests are used.**
Some estimate of variance (e.g., confidence intervals, standard errors) is reported for the main results/outcomes (i.e., those directly addressing the study question/ objective upon which the conclusions are based)? **Yes:** Appropriate variances estimate(s) is/are provided (e.g., range, distribution, confidence intervals, etc.). *Decision analyses:* sensitivity analysis includes all variables in the model.	

Partial: Undefined "+/-" expressions. *Or* no specific data given, but insufficient power acknowledged as a problem. *Or* variance estimates not provided for all main results/outcomes. *Or* inappropriate variance estimates (e.g., a study examining change over time provides a variance around the parameter of interest at "time 1" or "time 2", but does not provide an estimate of the variance around the difference). *Decision analyses:* sensitivity analysis is limited, IIing only some variables in the model. **No:** No information regarding uncertainty of the estimates. *Decision analyses:* No sensitivity analysis. **N/A:** Descriptive case series / reports. Descriptive surveys collecting information using open-ended questions.	
Controlled for confounding? **Yes:** Randomized study, with comparability of baseline characteristics reported (or non-comparability controlled for in the analysis). *Or* appropriate control at the design or analysis stage (e.g., matching, subgroup analysis, multivariate models, etc). *Decision analyses:* dependencies between variables fully accounted for (e.g., joint variables are considered). **Partial:** Incomplete control of confounding. *Or* control of confounding reportedly done but not completely described. *Or* randomized study without report of comparability of baseline characteristics. *Or* confounding not considered, but not likely to have seriously distorted the results. *Decision analyses:* incomplete consideration of dependencies between variables. **No:** Confounding not considered, and may have seriously distorted the results. *Decision analyses:* dependencies between variables not considered. **N/A:** Cross-sectional surveys of a single group (i.e., surveys examining change over time or surveys comparing different groups should address the potential for confounding). Descriptive studies. Studies explicitly stating the analysis is strictly descriptive/exploratory in nature.	**Consider 'confounding' variables in terms of demographic/ other characteristics of the sample reported, any additional variables measured as well as variables not measured but known to be implicated.**
Results reported in sufficient detail? **Yes:** Results include major outcomes and all mentioned secondary outcomes. **Partial:** Quantitative results reported only for some outcomes. *Or* difficult to assess as study question/objective not fully described (and is not made clear in the methods section), but results seem appropriate. **No:** Quantitative results are reported for a subsample only, or "n" changes continually across the denominator (e.g., reported proportions do not account for the entire study sample, but are reported only for those with complete data – i.e., the category of "unknown" is not used where needed). *Or* results for some major or mentioned secondary outcomes are only qualitatively reported when quantitative reporting would have been possible (e.g., results include vague comments such as "more likely" without quantitative report of actual numbers).	**Effect sizes for main (hypothesised) results must be reported for a score of '2'.**

N/A: Should not be checked for this question.	
Do the results support the conclusions? **Yes:** All the conclusions are supported by the data (even if analysis was inappropriate). Conclusions are based on all results relevant to the study question, negative as well as positive ones (e.g., they aren't based on the sole significant finding while ignoring the negative results). Part of the conclusions may expand beyond the results, if made *in addition to* rather than instead of those strictly supported by data, and if including indicators of their interpretative nature (e.g., "suggesting," "possibly"). **Partial:** Some of the major conclusions are supported by the data, some are not. *Or* speculative interpretations are not indicated as such. *Or* low (or unreported) response rates call into question the validity of generalizing the results to the target population of interest (i.e., the population defined by the sampling frame/strategy). **No:** None or a very small minority of the major conclusions are supported by the data. *Or* negative findings clearly due to low power are reported as definitive evidence against the alternate hypothesis. *Or* conclusions are missing. *Or* extremely low response rates invalidate generalizing the results to the target population of interest (i.e., the population defined by the sampling frame/ strategy). **N/A:** Should not be checked for this question.	

Appendix E: Instructions to Authors for SIP

Preparing Your Paper

Article Types

Original Article

- Should be written with the following elements in the following order: title page; abstract; keywords; main text with introduction, materials and methods, results, discussion and reference; acknowledgments (including any Funding and grant-awarding bodies); declaration of interest statement; appendices (as appropriate);table(s) with caption(s) (on individual pages); figures; figure captions (as a list).
- Should be no more than 8000 words, inclusive of:
    - Abstract
    - Tables
    - References
    - Figure or table captions
    - Endnotes
- Should contain an unstructured abstract of 200 words.
- Should contain between 3 and 5 **keywords**. Read making your article more discoverable, including information on choosing a title and search engine optimization.

- The journal seeks contributions that are in line with its mission as a publication that focuses on theoretical, empirical, and philosophical discussion of topics in social welfare, ethics and social philosophy.
- Please include a word count.

Format-Free Submission

Authors may submit their paper in any scholarly format or layout. Manuscripts may be supplied as single or multiple files. These can be Word, rich text format (rtf), open document format (odt), or PDF files. Figures and tables can be placed within the text or submitted as separate documents. Figures should be of sufficient resolution to enable refereeing.

- There are no strict formatting requirements, but all manuscripts must contain the essential elements needed to evaluate a manuscript: abstract, author affiliation, figures, tables, funder information, and references. Further details may be requested upon acceptance.
- References can be in any style or format, so long as a consistent scholarly citation format is applied. Author name(s), journal or book title, article or

chapter title, year of publication, volume and issue (where appropriate) and page numbers are essential. All bibliographic entries must contain a corresponding in-text citation. The addition of DOI (Digital Object Identifier) numbers is recommended but not essential.
- The journal reference style will be applied to the paper post-acceptance by Taylor & Francis.
- Spelling can be US or UK English so long as usage is consistent.

Note that, regardless of the file format of the original submission, an editable version of the article must be supplied at the revision stage.

Checklist: What to Include

1. **Author details.** Please ensure all listed authors meet the Taylor & Francis authorship criteria. All authors of a manuscript should include their full name and affiliation on the cover page of the manuscript. Where available, please also include ORCiDs and social media handles (Facebook, Twitter or LinkedIn). One author will need to be identified as the corresponding author, with their email address normally displayed in the article PDF (depending on the journal) and the online article. Authors' affiliations are the affiliations where the research was conducted. If any of the named co-authors moves affiliation during the peer-review process, the new affiliation can be given as a footnote. Please note that no changes to affiliation can be made after your paper is accepted. Read more on authorship.
2. You can opt to include a **video abstract** with your article. Find out how these can help your work reach a wider audience, and what to think about when filming.
3. **Funding details.** Please supply all details required by your funding and grant-awarding bodies as follows:
   For single agency grants
   This work was supported by the [Funding Agency] under Grant [number xxxx].
   For multiple agency grants
   This work was supported by the [Funding Agency #1] under Grant [number xxxx]; [Funding Agency #2] under Grant [number xxxx]; and [Funding Agency #3] under Grant [number xxxx].
4. **Disclosure statement.** This is to acknowledge any financial or non-financial interest that has arisen from the direct applications of your research. If there are no relevant competing interests to declare please state this within the article, for example: *The authors report there are no competing interests to declare*. Further guidance on what is a conflict of interest and how to disclose it.

5. **Biographical note.** Please supply a short biographical note for each author. This could be adapted from your departmental website or academic networking profile and should be relatively brief (e.g. no more than 200 words).
6. **Data availability statement.** If there is a data set associated with the paper, please provide information about where the data supporting the results or analyses presented in the paper can be found. Where applicable, this should include the hyperlink, DOI or other persistent identifier associated with the data set(s). Templates are also available to support authors.
7. **Data deposition.** If you choose to share or make the data underlying the study open, please deposit your data in a recognized data repository prior to or at the time of submission. You will be asked to provide the DOI, pre-reserved DOI, or other persistent identifier for the data set.
8. **Supplemental online material.** Supplemental material can be a video, dataset, fileset, sound file or anything which supports (and is pertinent to) your paper. We publish supplemental material online via Figshare. Find out more about supplemental material and how to submit it with your article.
9. **Figures.** Figures should be high quality (1200 dpi for line art, 600 dpi for grayscale and 300 dpi for colour, at the correct size). Figures should be supplied in one of our preferred file formats: EPS, PS, JPEG, TIFF, or Microsoft Word (DOC or DOCX) files are acceptable for figures that have been drawn in Word. For information relating to other file types, please consult our Submission of electronic artwork document.
10. **Tables.** Tables should present new information rather than duplicating what is in the text. Readers should be able to interpret the table without reference to the text. Please supply editable files.
11. **Equations.** If you are submitting your manuscript as a Word document, please ensure that equations are editable. More information about mathematical symbols and equations.
12. **Units.** Please use SI units (non-italicized).

Appendix F: Additional submission requirements for SIP

Keywords: adoption, social services, service-improvement

Funding Details

No funding was provided for this research. This project was undertaken in partial fulfilment of Jade Elliston's Doctorate in Clinical Psychology.

Disclosure Statement

The authors report there are no competing interests to declare.

Biographical note

Jade Elliston is a Trainee Clinical Psychologist based at the Oxford Institute of Clinical Psychology Training and Research where she is undertaking clinical and research work related to mental health as part of her Doctorate in Clinical Psychology. Her areas of interest include the impact of early adversity on biological, social and psychological development, attachment and systemic theory and working with children and young people.

Dr Ciorsdan Anderson is a Consultant Clinical Psychologist based at Oxford Health NHS Foundation Trust. She is also a Clinical Tutor and Lead for Supervision Training at the Oxford Clinical Psychology Training and Research. Her areas of interest include: working with young people who have complex trauma histories; Children Looked After; understanding how to work effectively in teams around young people with challenging

behaviour and complex needs; using Attachment theory to inform clinical practice and the impact of social media on the emotional wellbeing of children and young people.

Dr Nicola Connolly is a Consultant Clinical Psychologist based at Oxford Health NHS Foundation Trust.

Data availability statement

Interview transcripts will not be made available as the parents and professionals did not consent for these to be shared.

Supplemental online material

Interview topic guides will be made available to support the interpretation of the methodology and results of the study.

Appendix G: OHFT approval for SIP

Project registration

Flag for follow up.

You forwarded this message on Tue 16/11/2021 20:38

Rhodes Katie (RNU) Oxford Health
To: Elliston Jade (RNU) Oxford Health
Fri 06/08/2021 12:08

Good afternoon Jade,

Your audit has been approved.

Upon completion of your audit please provide us with a report.

Kind Regards,

Katie Rhodes
Senior Team Administrator
Buckinghamshire Mental Health Directorate
Oxford Health NHS Foundation Trust
The Whiteleaf Centre | Bierton Road | Aylesbury | HP20 1EG

Caring, Safe and Excellent. If you are interested in becoming a member of our Foundation Trust please join us online at www.oxfordhealth.nhs.uk

Clinical audit amendments

Flag for follow up.

Malhotra Tina (RNU) Oxford Health
To: Rhodes Katie (RNU) Oxford Health; Khosla Vivek (RNU) Oxford Health
Cc: Elliston Jade (RNU) Oxford Health
Wed 25/05/2022 07:08

Hi Katie,
Approved.

Best wishes,
Tina

Reply | Reply all | Forward

Rhodes Katie (RNU) Oxford Health
To: Malhotra Tina (RNU) Oxford Health; Khosla Vivek (RNU) Oxford Health
Cc: Elliston Jade (RNU) Oxford Health
Tue 24/05/2022 10:33

Clinical Audit Quality Improv... 69 KB

Good morning both,

The attached proposal was approved last year however some updates have been made. Please see attached for approval.

Katie Rhodes
Senior Team Administrator
Buckinghamshire Mental Health Directorate
Oxford Health NHS Foundation Trust
The Whiteleaf Centre | Bierton Road | Aylesbury | HP20 1EG

Caring, Safe and Excellent. If you are interested in becoming a member of our Foundation Trust please join us online at www.oxfordhealth.nhs.uk

Appendix H: Topic guides for SIP semi-structured interviews

Topic Guide - Parents
Version 1

Key:
- **Topic**
- Guidance
- Questions
- *Prompts*

Warming the context; getting to know the participant

- Provide overview of topics to be covered.

- Re-iterate that the interview might be emotionally upsetting, that the participant can pause or stop at any time.

- Identify what the participant needs to feel safe:
  - is there anything you need or I can do to help you feel comfortable?
  - how would I know if you are uncomfortable or do not want to answer?

START RECORDING

- To start: can you tell me a bit about yourself?
  - *hobbies/ interests*
  - *experience of ReConnect*

Experience of forced adoption

- Emphasise that the participant has more knowledge about what is like to have children removed than anyone in services and that we are extremely grateful to them for sharing their story with us.

- Can you tell me about what happened when your child(ren) was removed from your care?
  - *when did it happen?*
  - *how did it happen?*
  - *who was involved? (e.g. social services)*

- What was that like? How did you feel?

Impact of forced adoption

- Re-iterate how difficult their experience must have been – offer a break.

- How did this experience affect you?
  - *relationships with family, friends and/ or relatives*
  - *emotionally*
  - *impact on their child(ren)*
  - *views of themselves*
  - *views of services*

- Did you have any support?

- What do you think parents who have had similar experience need? Who do you need it from?
  - at the point of removal
  - during the adoption process
  - after the adoption process

- *So that concludes my questions, do you have anything else that you would like to add? Anything missed?*

STOP RECORDING

Topic Guide - Staff
Version 1

Key:
- **Topic**
- Guidance
- Questions
- *Prompts*

Warming the context; getting to know the participant

- Provide overview of topics to be covered.

- Re-iterate that the interview might be emotionally upsetting, that the participant can pause or stop at any time.

- Identify what the participant needs to feel safe:
  - is there anything you need or I can do to help you feel comfortable?
  - how would I know if you are uncomfortable or do not want to answer?

START RECORDING

- To start: can you tell me a bit about yourself and your job?
  - where do you work?
  - how long have you worked there?
  - what does your job involve?
  - What specifically do you do day-to-day?
  - Transitions and developments during your time in the job?

Experience of forced adoption

- Re-iterate that the participant has indicated that they have experience working with parents who have had their children removed without consent.

- Can you tell me about what your experience of working with parents who have their children removed without consent?
  - in what circumstances does forced adoption occur?
  - how does the process of adoption work when parents do not consent?
  - do you have an example you can talk me through?

Impact of forced adoption

- Re-iterate how challenging this line of work can be, thank them for offering their time – offer a break.

- From your perspective, what impact does forced adoption have on families?
  - relationships with family, friends and/ or relatives
  - emotionally
  - parents' view of themselves
  - parents' views of services
  - views on impact of early intervention

- What impact did forced adoption have on you?
  - professionally (e.g. appraisal of their work)

- emotionally

- From your perspective, what do staff need to be able to work with these parents?
  - is there anything you found helpful?
  - is there anything you needed but didn't get?

- *So that concludes my questions, do you have anything else that you would like to add? Anything missed?*

STOP RECORDING

Appendix I: SIP Position Statement

I am a White British female, aged in my late 20s, originating from a lower working-class family in the south of England. I do not have children. I do not have any prior experience of working in social services nor with parents who have had their children removed by social services, though I have some experience of working with children and young people considered at risk of harm and placed on Child in Need (CIN) and Child Protection (CP) plans. I have no personal experience of social services involvement in terms of safeguarding children, though my family have experiences of social services involvement owing to physical disability and illness.

I am currently undertaking doctoral training in clinical psychology, within which I have completed an additional course in Systemic Theory and Practice. I hold a bachelor's degree in Psychology and a master's degree in Developmental Psychopathology. Having a specific interest in qualitative research, I have some prior experience of thematic analysis and I align myself with a pluralist epistemological stance. I have lived experience of mental health difficulties and via my family circumstances, vicarious experience of service inaccessibility. I am interested in relational approaches to distress, and particularly in the role of services as both a protective and perpetuating factor in understanding mental health difficulties.

Throughout the process of the project, I kept a reflective diary. This helped me consider the aspects of my own experiences, position and personal attitudes and views that shaped my interpretations of the data. I also used the 'note' function in NVivo to keep notes throughout the coding and re-coding process related to thoughts that were brought up by my reading of the data, including any potential alternative interpretations and what they were based on. My diary and notes helped me to bracket myself as I analysed the data.

Appendix J: Lay summary of project and findings provided to parents

Brief summary of the ReConnect Service Improvement Project
undertaken by Jade Elliston (Trainee Clinical Psychologist) under the supervision of Dr Nicola Connolly (Consultant Clinical Psychologist) and Dr Ciorsdan Anderson (Consultant Clinical Psychologist)

At present, the law in the England prioritises the welfare and needs of children who are considered at risk of harm over and above the wishes of their parents. This is because national reviews of high-profile cases of child abuse and deaths of vulnerable children, such as Victoria Climbié and Baby Peter Connelly, highlighted that prioritising parental rights can place children at greater risk of harm. Currently, children at high risk can be placed in alternative care with foster carers, other family members or be adopted, all of which can occur without their birth parents' consent. These processes are referred to collectively under the umbrella term 'forced adoption'.

A growing amount of clinical research has shown that although parents experience a huge sense of loss during the process, they are not supported following the removal of their children and often experience social isolation and judgement from others. Not only does this affect their mental health but having often had difficult past experiences themselves as well as challenging interactions with social services, they can struggle to access help. In Buckinghamshire, a service designed to support vulnerable families – ReConnect – asked for some guidance on how they could adapt and extend their service to support parents with experience of forced adoption. Interviews were carried out with four parents and seven members of staff who were familiar with service processes related to forced adoption. Interviewees were asked about their thoughts and feelings in relation to their experiences, but also what support they believe should be available for parents.

Parents talked about their experience of services; their commitment to their children; the sense of injustice they feel, the impact of adoption on their wellbeing and relationships to others as well as the support they feel they need. Staff talked about how their work is impacted by service changes and service gaps; their experience of stringent procedures around forced adoption; balancing different priorities in their roles; their observations of the impact of adoption on families; the impact of adoption on themselves and the support they feel is needed for themselves, services and parents.

Based on these results, a number of recommendations were made to ReConnect, focussed on what they can do as a service to support parents, as well as how they can support parents by supporting the staff working with parents. Recommendations were made to ReConnect based on:

- Referral processes, including providing opportunities for self-referral and suggesting that mandatory referrals could be made by social care services where children are placed on Child Protection Plans
- Advertising, including use of social media and charities
- Appointments, including redecorating clinical spaces and seeking funding to support childcare to enable parents to attend appointments
- Advocacy, including supporting parents to report difficulties with contact arrangements and accessing help for basic needs, e.g. housing, food and furniture
- Joint-work with social care, including the co-production of a service map to support parents' understanding of the processes surrounding forced adoption (including support available for parents of older children), as well as facilitating a shared reflective space, consultation and teaching to staff supporting parents and advocating for staff in terms of access to supervision and training

- A commissioning review of ReConnect to consider expansion of the service team to reflect the greater amount of work it is suggested that their team undertake
- Continued service evaluation to ensure that the team is meeting the needs of parents, which might include liaison with similar teams to consider further support and any additional ways to collect and present data relevant to service development

The researchers wish to wholeheartedly thank the parents and staff who have so generously shared their stories in the service of supporting parents who experience forced adoption. It is hoped that the outcomes of this investigation will support ReConnect in developing their service in the future.

Appendix K: Instructions to Authors for TDRP

4. PREPARING THE SUBMISSION

Free Format Submission

British Journal of Clinical Psychology now offers free format submission for a simplified and streamlined submission process.

Before you submit, you will need:

- Your manuscript: this can be a single file including text, figures, and tables, or separate files – whichever you prefer (If you do submit separate files, we encourage you to also include your figures within the main document to make it easier for editors and reviewers to read your manuscript, but this is not compulsory). All required sections should be contained in your manuscript, including abstract, introduction, methods, results, and conclusions. Figures and tables should have legends. References may be submitted in any style or format, as long as it is consistent throughout the manuscript. If the manuscript, figures or tables are difficult for you to read, they will also be difficult for the editors and reviewers. If your manuscript is difficult to read, the editorial office may send it back to you for revision.
- The title page of the manuscript, including a data availability statement and your co-author details with affiliations. *(Why is this important? We need to keep all co-authors informed of the outcome of the peer review process.)* You may like to use this template for your title page.

Important: the journal operates a double-anonymous peer review policy. Anonymise your manuscript and prepare a separate title page containing author details. (Why is this important? We need to uphold rigorous ethical standards for the research we consider for publication.)

- An ORCID ID, freely available at https://orcid.org. *(Why is this important? Your article, if accepted and published, will be attached to your ORCID profile. Institutions and funders are increasingly requiring authors to have ORCID IDs.)*

To submit, login at **https://wiley.atyponrex.com/journal/BJC** and create a new submission. Follow the submission steps as required and submit the manuscript.

If you are invited to revise your manuscript after peer review, the journal will also request the revised manuscript to be formatted according to journal requirements as described below.

Revised Manuscript Submission

Contributions must be typed in double spacing. All sheets must be numbered.

Cover letters are not mandatory; however, they may be supplied at the author's discretion. They should be pasted into the 'Comments' box in Editorial Manager.

Parts of the Manuscript

The manuscript should be submitted in separate files: title page; main text file; figures/tables; supporting information.

Title Page

You may like to use **this template** for your title page. The title page should contain**:**

i. A short informative title containing the major key words. The title should not contain abbreviations (see Wiley's best practice SEO tips);
ii. A short running title of less than 40 characters;
iii. The full names of the authors;
iv. The author's institutional affiliations where the work was conducted, with a footnote for the author's present address if different from where the work was conducted;
v. Abstract;
vi. Keywords
vii. Data availability statement (see Data Sharing and Data Accessibility Policy);
viii. Acknowledgments.

Author Contributions

For all articles, the journal mandates the CRediT (Contribution Roles Taxonomy)—more information is available on our **Author Services** site.

Abstract

Please provide a structured abstract under the headings: Objectives, Methods, Results, Conclusions. For Articles, the abstract should not exceed 250 words. For Brief Reports, abstracts should not exceed 120 words.

Articles which report original scientific research should also include a heading 'Design' before 'Methods'. The 'Methods' section for systematic reviews and theoretical papers should include, as a minimum, a description of the methods the author(s) used to access the literature they drew upon. That is, the abstract should summarize the databases that were consulted and the search terms that were used.

Keywords

Provide appropriate keywords.

Acknowledgments

Contributions from anyone who does not meet the criteria for authorship should be listed, with permission from the contributor, in an Acknowledgments section. Financial and

material support should also be mentioned. Thanks to anonymous reviewers are not appropriate.

Practitioner Points

All articles must include Practitioner Points – these are 2-4 bullet points, following the abstract, with the heading 'Practitioner Points'. These should briefly and clearly outline the relevance of your research to professional practice.

Main Text File

As papers are double-anonymous peer reviewed, the main text file should not include any information that might identify the authors.
Manuscripts can be uploaded either as a single document (containing the main text, tables and figures), or with figures and tables provided as separate files. Should your manuscript reach revision stage, figures and tables must be provided as separate files. The main manuscript file can be submitted in Microsoft Word (.doc or .docx) or LaTex (.tex) format.

If submitting your manuscript file in LaTex format via Research Exchange, select the file designation "Main Document – LaTeX .tex File" on upload. When submitting a LaTex Main Document, you must also provide a PDF version of the manuscript for Peer Review. Please upload this file as "Main Document - LaTeX PDF." All supporting files that are referred to in the LaTex Main Document should be uploaded as a "LaTeX Supplementary File."

LaTex Guidelines for Post-Acceptance:

Please check that you have supplied the following files for typesetting post-acceptance:

- PDF of the finalized source manuscript files compiled without any errors.
- The LaTeX source code files (text, figure captions, and tables, preferably in a single file), BibTex files (if used), any associated packages/files along with all other files needed for compiling without any errors. This is particularly important if authors have used any LaTeX style or class files, bibliography files (.bbl, .bst. .blg) or packages apart from those used in the NJD LaTex Template class file.
- Electronic graphics files for the illustrations in Encapsulated PostScript (EPS), PDF or TIFF format. Authors are requested not to create figures using LaTeX codes.

Your main document file should include:

- A short informative title containing the major key words. The title should not contain abbreviations;
- Abstract structured (objectives/methods/results/conclusions);
- Up to seven keywords;
- Practitioner Points: Authors will need to provide no more than 2-4 bullet points, written with the practitioner in mind, that summarize the key messages of their paper to be published with their article;

- Main body: formatted as introduction, materials & methods, results, discussion, conclusion;
- References;
- Tables (each table complete with title and footnotes);
- Figure legends: Legends should be supplied as a complete list in the text. Figures should be uploaded as separate files (see below).

Supporting information should be supplied as separate files. Tables and figures can be included at the end of the main document or attached as separate files but they must be mentioned in the text.

- As papers are double-anonymous peer reviewed, the main text file should not include any information that might identify the authors. Do not mention the authors' names or affiliations and always refer to any previous work in the third person.
- The journal uses British/US spelling; however, authors may submit using either option, as spelling of accepted papers is converted during the production process.

References

This journal uses APA reference style; as the journal offers Free Format submission, however, this is for information only and you do not need to format the references in your article. This will instead be taken care of by the typesetter.

Tables

Tables should be self-contained and complement, not duplicate, information contained in the text. They should be supplied as editable files, not pasted as images. Legends should be concise but comprehensive – the table, legend, and footnotes must be understandable without reference to the text. All abbreviations must be defined in footnotes. Footnote symbols: †, ‡, §, ¶, should be used (in that order) and *, **, *** should be reserved for P-values. Statistical measures such as SD or SEM should be identified in the headings.

Figures

Although authors are encouraged to send the highest-quality figures possible, for peer-review purposes, a wide variety of formats, sizes, and resolutions are accepted.

Basic figure requirements for figures submitted with manuscripts for initial peer review, as well as the more detailed post-acceptance figure requirements.

Legends should be concise but comprehensive – the figure and its legend must be understandable without reference to the text. Include definitions of any symbols used and define/explain all abbreviations and units of measurement.

Supporting Information

Supporting information is information that is not essential to the article, but provides greater depth and background. It is hosted online and appears without editing or typesetting. It may include tables, figures, videos, datasets, etc.

Wiley's FAQs on supporting information.

Note: if data, scripts, or other artefacts used to generate the analyses presented in the paper are available via a publicly available data repository, authors should include a reference to the location of the material within their paper.

General Style Points

For guidelines on editorial style, please consult the **APA Publication Manual** published by the American Psychological Association. The following points provide general advice on formatting and style.

- **Language:** Authors must avoid the use of sexist or any other discriminatory language.
- **Abbreviations:** In general, terms should not be abbreviated unless they are used repeatedly and the abbreviation is helpful to the reader. Initially, use the word in full, followed by the abbreviation in parentheses. Thereafter use the abbreviation only.
- **Units of measurement:** Measurements should be given in SI or SI-derived units. Visit the Bureau International des Poids et Mesures (BIPM) website for more information about SI units.
- **Effect size:** In normal circumstances, effect size should be incorporated.
- **Numbers:** numbers under 10 are spelt out, except for: measurements with a unit (8mmol/l); age (6 weeks old), or lists with other numbers (11 dogs, 9 cats, 4 gerbils).

Appendix L: Additional submission requirements for TDRP

Keywords: voice-hearing, developmental trauma, dissociation, attachment

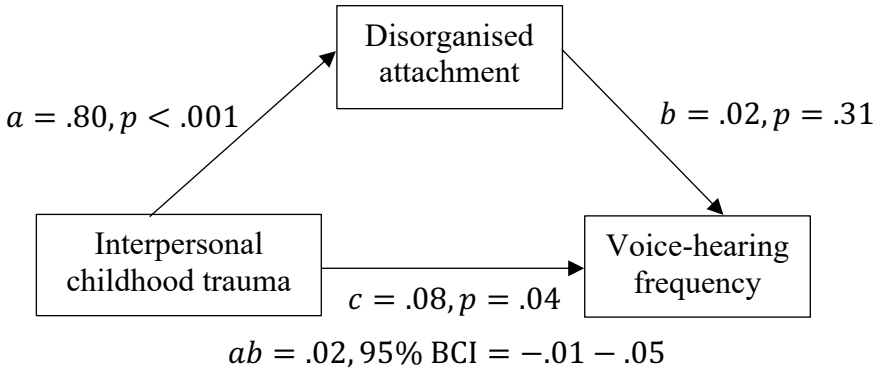
Practitioner points:

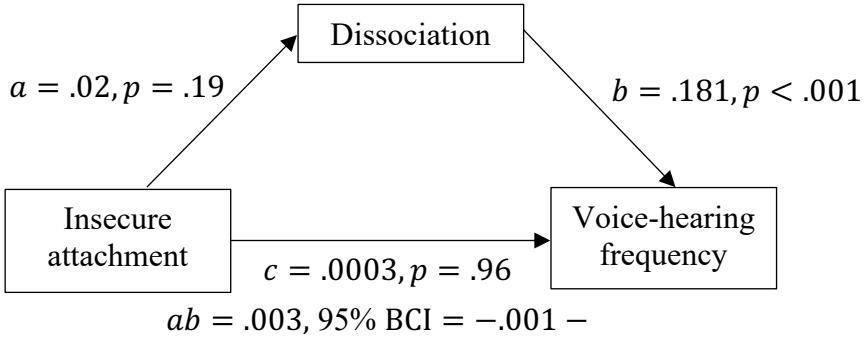
- Although voice-hearing was associated with higher levels of both interpersonal and non-interpersonal childhood trauma, only interpersonal trauma was a significant predictor, with higher numbers of exposures corresponding to a higher chance of hearing voices.
- The relationship between childhood trauma and voice-hearing may be explained by a complex mechanism of psychological processes, potentially including disorganised attachment and dissociation.
- Research in this area is currently limited by cross-sectional methodologies and issues related to measurement and recruitment.
- Attributing causality should be approached tentatively, and additional thought should be given to the individual circumstances and identities of those hearing voices, particularly where these are not reflected in research samples.

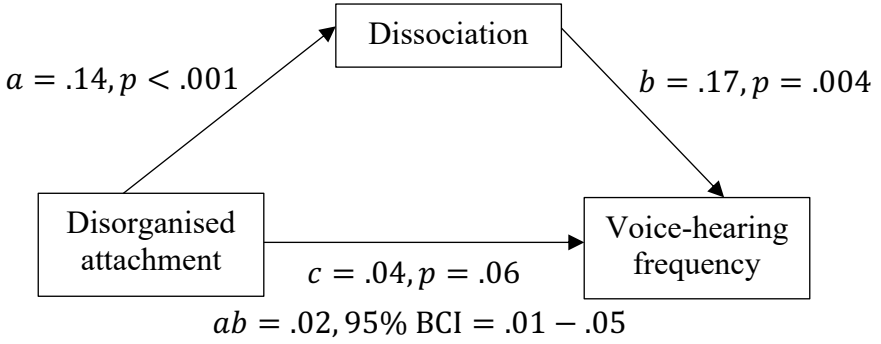
Appendix M: Reasons for excluding data sets

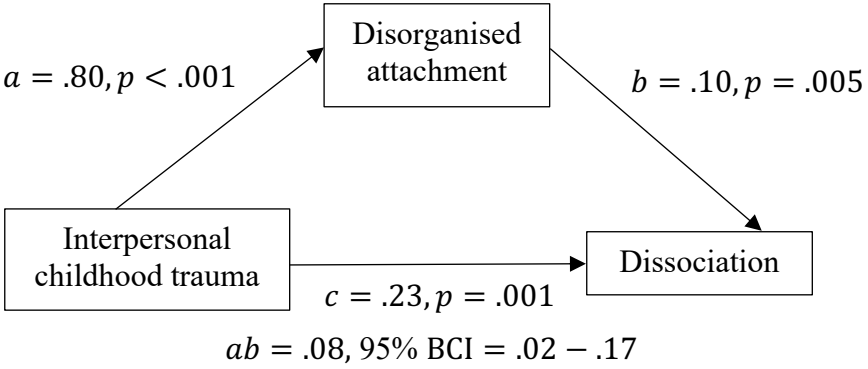
Total participants accessing study online	$n = 216$
Total participants accessing study via phone, video call or face-to-face	$n = 8$
Total participants excluded at screening	$n = 12$
Total incomplete data sets destroyed	$n = 98$
Exit during information sheet/ consent	$n = 69$
Exit during demographic data collection	$n = 10$
Exit during BBTS	$n = 7$
Exit during PSYRATS	$n = 3$
Exit during PAM-R	$n = 7$
Exit during ČEFSA	$n = 1$
Exit during PaDS	$n = 1$

Appendix N: Path diagrams









Appendix O: CUREC approval letter for TDRP

MEDICAL SCIENCES INTERDIVISIONAL RESEARCH ETHICS COMMITTEE
Research Services, Boundary Brook House, Churchill Drive, Headington, Oxford, OX3 7GB
Tel: +44(0)1865 616575
ethics@medsci.ox.ac.uk

CONFIDENTIAL

Professor Craig Steel & Jade Elliston
Oxford Institute of Clinical Psychology Training and Research
Isis Education Centre
Warneford Hospital
Headington, Oxford

9 August 2022

Dear Professor Steel and Jade,

Research Ethics Approval - CUREC 2

Ethics Approval Reference: R81513/RE001

Study title: The roles of attachment and dissociation in the relationship between childhood trauma and voice-hearing

Short title: An investigation of the relationship between childhood trauma and voice-hearing

The above application has been considered on behalf of the Medical Sciences Interdivisional Research Ethics Committee (MS IDREC) in accordance with the University's procedures for ethical approval of all research involving human participants.

I am pleased to inform you that, on the basis of the information provided to the IDREC, the proposed research has been judged as meeting appropriate ethical standards, and approval has been granted for a period of **18 months**, commencing on **9th August 2022**.

You will be required to submit an annual progress report on each anniversary of study approval, until the study is completed, and your study may be selected for review during an annual audit.

Amendments

Should there be any subsequent changes to the study, you should submit details to the MS IDREC for consideration and approval. Details of changes must be listed on an amendment form.

Yours Sincerely

DocuSigned by:
Leah Butts
9F14889D2BC549A...

Mrs Leah Butts
Research Ethics Administrator

for
Dr Helen Barnby-Porritt
Research Ethics Manager