The relationship between schemata and psychotic symptoms in adult survivors of developmental trauma: A mixed methods study

Jordan Reid

I confirm that the work presented in this thesis is my own. Where information has been
derived from other sources, I confirm that this has been indicated in the thesis.

Signature:

Name: Jordan Reid

Date: 30th June 2021
Overview

Abuse and neglect in childhood and adolescence (developmental trauma; DT) is an established risk factor for psychosis. This thesis explores the relationship between DT and psychotic symptoms in adulthood.

The systematic review in Chapter 1 examines the effectiveness, tolerability and acceptability of trauma-focused psychotherapies (TFPT) for the treatment of psychotic symptoms. As the literature remains in its infancy, the review takes a broad view in order to capture as much evidence as possible. It is not limited to any specific diagnosis or mode of therapy, but includes any study that utilises a quantitative measure of psychotic symptoms and any study that identifies as trauma-focused. Evidence was found in support of exposure-based therapies, and TFPT was well tolerated. However, the literature was sparse and at high risk of bias. More well-controlled research is needed.

The empirical paper in Chapter 2 looks at one potential mediator of the relationship between DT and psychotic symptoms, core schemata. It utilises mixed methods to explore the relationship between DT, schemata and psychotic symptoms from a community sample of healthy and ultra-high risk of psychosis (UHR) participants. Quantitatively, self-negative and other-negative schemata were found to partially mediate the relationship between DT and psychotic symptoms, particularly strongly for paranoia. Qualitatively, the framework analysis revealed how these links might form – for example, through internalisation of abusive messages or the generation of a self-concept as broken or defective. The findings support the idea of a cognitive pathway between DT and psychotic symptoms that is partially dependent upon negative schemata. Future prospective research is needed to validate these findings.

The critical reflection in Chapter 3 reflects upon the challenges faced and lessons learnt in conducting this research (such as through the COVID-19 pandemic) and further ideas for the direction of future research.
Impact Statement

Experiences of neglect and abuse in childhood and adolescence (developmental trauma; DT) are an established risk factor for psychosis and are more common in people with psychosis than other psychiatric conditions. The hypothesis of a causative relationship is supported by evidence which fulfils the Bradford Hill criteria. Psychosis has significant psychosocial impacts including reduced life expectancy, poverty, and unemployment. It is therefore highly important that research takes place to improve treatments and outcomes for people with trauma histories and psychosis.

In Chapter 1, we systematically reviewed the evidence for the efficacy, tolerability and acceptability of trauma-focused psychotherapist (TFPT). Evidence was most strongly in support of exposure-based therapies, and there was some evidence that TFPT may be most effective for people that are able to make connections between the DT they experienced and their psychotic symptoms. TFPT was also found to be broadly well-tolerated, even those protocols which utilised exposure. These findings have clear clinical applications which are explored in the report. For example, the relationship between DT and psychotic symptoms should be thoroughly assessed and formulated, and an appropriate target for TFPT (that is related to DT and the psychotic symptoms) should be established. Future research can also be encouraged by these findings, especially as there is a lack of well-controlled research designs examining TFPT with exposure for psychotic symptoms.

In Chapter 2, we aimed to address the knowledge gap regarding the role of schematic beliefs in adult survivors of developmental trauma with psychosis, utilising ultra-high risk for psychosis (UHR) participants to allow for a consideration of risk and resilience to psychotic disorders. It explored the role of schemata as a mediator between DT and psychotic symptoms both quantitatively and qualitatively. Employing qualitative
methodology allowed us to explore how and why schemata might mediate this relationship. The study found support for a cognitive pathway, triangulated through both quantitative and qualitative methods. These findings have clear clinical impacts as they support cognitive theories of psychopathology and suggest that schemata could be a valid target of psychological intervention in people with psychotic symptoms, an area which is currently greatly under-researched. As such, the findings also support future research in schema-focused therapies in people with psychosis and provide important data to guide future development of treatment approaches for psychosis.

The present findings will also inform ongoing research as part of IMPACT (Investigating the Mechanisms underlying Psychosis Associated with Childhood Trauma) and will be published in a peer-reviewed scientific journal.
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Part 1: Literature Review

Trauma-focused psychotherapies for people with psychotic symptoms: A systematic review of intervention studies
Abstract

BACKGROUND: Many people with psychotic symptoms have survived psychological trauma and psychological trauma is an established risk factor for psychosis. Trauma-focused psychotherapy (TPFT) has been suggested as a potential treatment for reducing psychotic symptoms. AIMS: To investigate the effectiveness, tolerability, and acceptability of TFPT for psychotic symptoms. METHOD: A systematic review was conducted, including studies of any form of psychotherapy that identified as trauma-focused and measured psychotic symptom as an outcome across a broad range of diagnoses. RESULTS: From 2584 papers initially identified, 17 studies of 857 participants met eligibility criteria. The best evidence for effectiveness is in support of exposure-based therapies, and the targeting of memories of trauma that appear linked to the psychotic symptoms. TFPT were found to be well tolerated, with very few adverse events. However, only four controlled trials were identified, and risk of bias was high across studies as a whole. CONCLUSIONS: There is preliminary evidence that TFPT using exposure is effective and well tolerated. Methodologically rigorous trials testing the efficacy of TFPT for the treatment of psychotic symptoms are needed for appropriate assessment of this promising intervention.
Introduction

Psychotic Symptoms

Psychotic symptoms are characterised by delusions, hallucinations, and paranoia (positive symptoms) as well as difficulties with thinking, blunted emotions, and low motivation (negative symptoms). Psychotic symptoms occur in a range of disorders including schizophrenia spectrum disorders, bipolar disorder as well as borderline personality disorder and have been considered a transdiagnostic phenomenon (Buckley et al., 2009). Despite this, the majority of the literature focuses on psychotic disorders when considering psychotic symptoms. Nevertheless, other mental health difficulties are strongly comorbid with psychosis, such as depression, anxiety, and post-traumatic stress disorder (PTSD; National Institute of Clinical Excellence (NICE), 2014). Psychosis has significant psychosocial impacts including unemployment, impaired educational attainment, and poverty (Marwaha et al., 2007). The life expectancy of people with psychosis is significantly reduced (Saha et al., 2007) due to suicide and greater health problems (Yuen et al., 2014).

More recently, psychological interventions such as cognitive behavioural therapy for psychosis (CBTp) have been employed to treat psychotic symptoms with some success, with a recent meta-analysis finding small but significant effects as compared to other psychological interventions for psychotic symptoms (Turner et al., 2020).

Psychosis and Trauma

Experiences of abuse and neglect in childhood and adolescence (developmental trauma; DT) are more common in people with psychosis than in people with other psychiatric conditions (Spence et al., 2006). Studies have consistently indicated that exposure to DT is associated with increased odds of psychotic experiences, with evidence fulfilling the Bradford Hill criteria (1965) supporting the hypothesis of a causative
relationship between DT and psychosis, including temporal relationships (Kelleher et al., 2013), dose-response relationships (see e.g. Croft et al., 2019) and plausible biological mechanisms (Howes & Murray, 2014).

**Psychosis and PTSD**

Traumatic experiences can also give rise to PTSD, and there is a growing body of evidence showing a relationship between PTSD and psychosis. PTSD is a risk factor for the development of psychosis (Okkels et al., 2017), and around 39% of people with psychosis experience concurrent PTSD (Mueser et al., 2010). The experience of psychosis itself can be traumatising, through distressing symptoms and experiences such compulsory hospitalisation (Tarrier et al., 2007); a meta-analysis found a 42% prevalence of PTSD symptoms resulting from first-episode psychosis (Rodrigues & Anderson, 2017).

Whilst there are likely to be complex pathways between trauma and psychosis, researchers have long theorised that the evidence of links between psychosis and PTSD suggests that similar mechanisms could be involved in both (see e.g. Morrison et al., 2003). For example, a recent meta-analysis of psychological mediators between DT and psychosis (Bloomfield et al., 2021) found that PTSD symptoms (numbing, avoidance, and hyperarousal) partially mediated the relationship between DT and hallucinations. A further commonality comes in the form of negative schemata (a cognitive ‘framework’ for knowledge about people, events), found to mediate between DT and paranoia and delusions (Bloomfield et al., 2021), whilst negative schemata have also been long implicated in the maintenance of PTSD in cognitive models (Ehlers & Clark, 2000).

The role of PTSD intrusive memory symptoms themselves have been shown to be relevant to psychosis, as PTSD re-experiencing symptoms are strongly associated with hallucinations (Gracie et al., 2007). This may be explained by the dual-representation theory, which posits that in highly traumatic conditions, perceptual and emotional
information is not properly integrated, lacking spatiotemporal context to be integrated as a memory, which is then liable to be involuntarily retrieved and re-experienced in an emotionally raw form (Brewin et al., 1996). This may mean that, in psychosis, an intrusive trauma memory may not be experienced as a memory and is instead misattributed in a psychotic way (e.g. as a voice). Indeed, auditory hallucinations have been proposed to be a type of posttraumatic intrusion related to a memory in survivors of trauma (Steel, 2015). This is consistent with studies that have shown that hallucinatory content is often thematically linked to experiences of trauma (Hardy et al., 2005).

**Trauma-Focused Psychological Therapies**

Given the links between traumatic experiences, PTSD and psychosis, there is growing interest in trauma-focused psychotherapies (TFPT) for psychotic symptoms. TFPT are a family of therapies developed to treat PTSD that explicitly focus on trauma memories to help individuals process traumatic experiences (Schnurr, 2017). In the UK, NICE guidelines recommend the use of trauma-focused CBT (TFCBT) and eye movement desensitisation and reprocessing (EMDR; NICE, 2018). Such approaches have been well-established as effective treatments for PTS symptoms.

Broadly, TFCBT, EMDR and other approaches that utilise exposure are thought to work by promoting emotional habituation and reprocessing of traumatic memories via repeated exposure to the traumatic event or cues of it. Psychoeducation is another key component, to help the person normalise and reappraise their symptoms, manage distressing situations, regulate emotions, and promote alternative beliefs. TFPT have some differences between them; for example, TFCBT uses cognitive restructuring to support individuals to identify and change unhelpful thoughts and beliefs, whilst EMDR’s usage of bilateral stimulation, most often in the form of eye movements (Shapiro, 2001), is unique.
Given the well-established evidence base for TFPT and comorbidity between PTSD and psychosis, the latest NICE guidelines (2014) call for all people with psychosis to be assessed for PTSD. Though the literature remains in its infancy, two recent reviews have concluded that TFPT can safely reduce PTS symptoms in those with psychosis (Sin & Spain, 2016; Swan et al., 2017). Patients themselves have reported finding TFPT helpful and worthwhile despite the potential for transient increased distress or symptom exacerbation, and would recommend it to others, with significant themes of relief (Tong et al., 2017).

The Need for Improved Research and Outcomes

Whilst evidence is emerging to show that TFPT can be effective in reducing PTS symptoms for people with psychosis, there is little research into whether TFPT could reduce psychotic symptoms themselves. There have been two reviews in this area to date. The first (Brand et al., 2018) found small effects for TFPT on positive symptoms of psychosis which was not maintained at follow-up. It included studies up to 2016, and confidence in the conclusions were limited by the small number of studies, many of which were of high risk of bias. The second (Bloomfield et al., 2020) included studies dated up to 2018 and focused exclusively on studies with participants that had experienced DT, and found preliminary evidence in favour of third-wave cognitive therapies, but also commented on the lack of methodological rigour in the literature.

There remains therefore a pressing need for more research to improve treatments and outcomes for people with psychosis and trauma histories. We sought to address this knowledge gap by presenting the current evidence for the efficacy of TFPT on psychotic symptoms. To differentiate this review from previously published work and to draw together a range of disparate research, we have not limited the review to any specific type of TFPT but rather any psychological intervention that has self-defined as trauma-focused and incorporates an understanding of the effects of trauma into treatment. Additionally, as
psychotic symptoms are present in a variety of diagnoses, and so are likely a
transdiagnostic phenomenon (Buckley et al., 2009), we have not limited the review to any
specific diagnosis. We have also not limited the review to any kind of trauma, further
setting this review apart from previous reviews. The findings of this review can then be
used to inform the development of clinical services for this highly co-morbid group.

The following questions will be addressed:

1. What is the effectiveness of trauma-focused psychotherapies for psychotic
   symptoms?
2. What is the tolerability and acceptability of trauma-focused psychotherapies in
   people with psychotic symptoms?

Methods

Protocol and Registration

The review protocol was registered with PROSPERO (CRD42020202135). We
followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis
Guidelines (PRISMA; Moher et al., 2009).

Outcome Measure

We defined the primary outcome a priori as quantitively measured psychotic
symptoms. If the tool allows, this can include relevant symptom domain subscales, such as
hallucinations, delusions and paranoia. Secondary outcomes included measures other
domains of psychopathology (depression, anxiety, PTSD and CPTSD) and measures of social
functioning.
Eligibility Criteria

Our inclusion criteria aimed to include any study of the efficacy of a trauma-focused psychotherapy for psychotic symptoms with a quantitative outcome measure. Broad criteria were used due to a limited but emerging evidence base.

We defined trauma-focused psychotherapies as any psychological intervention from any modality of psychotherapy or theoretical orientation that had an explicit focus on past traumatic memories and/or self-defined as trauma-focused. We decided to distinguish between trauma-focused CBT (TFCBT) that would meet the criteria of Ehlers and Clark (2000) by including exposure, and trauma-informed CBT (TICBT) that did not follow the Ehlers and Clark approach. The interventions could be delivered in any setting and be delivered in a group or individual format.

We defined psychotic symptoms as hallucinations, delusions and/or paranoia. We aimed to also include any symptoms which were defined as psychotic symptoms by the study. Diagnoses which are strongly associated with psychotic symptoms, including schizophrenia, schizoaffective disorder, psychotic depression, first-episode psychosis and at-risk mental states were included. However, given the presence of psychotic symptoms in other clinical diagnoses, we did not limit our criteria to any specific diagnoses. For example, dissociative identity disorder was included due to research highlighting elevated levels of psychotic symptoms (e.g. Foote & Park, 2008).

We included studies on adults over the age of 18. Otherwise, we placed no limits on the population to be included.

We included any study design that offered a trauma-focused psychotherapeutic intervention, including case reports, case series and randomised controlled trials. A quantitative measure of psychotic symptom change was required. We excluded studies that were not reported in English, were not published in peer-reviewed journals, studies of non-clinical populations, and studies that solely offered a pharmacological intervention.
**Search Strategy**

To identify relevant studies according to the inclusion criteria, Ovid was used to undertake a systematic search of medical and psychological databases (MEDLINE and PsycINFO) and ProQuest was used to search PTSDPubs using the following terms: (hallucinat* OR delus* OR paranoi* OR voice* OR intrusi* OR "ultra high risk" OR UHR OR "at risk mental state") AND ("Traumafocu?ed" OR trauma* OR PTSD OR "post-traumatic stress" OR CPTSD OR "complex trauma" OR neglect* OR maltreatment OR bully* OR victim* OR reprocessing) AND ("Narrative Exposure Therapy" OR NET OR "Contextual Processing Theory" OR "Cognitive Processing Therapy" or CPT OR "Exposure Therapy" OR "Systemic Therapy" OR counselling OR "Behavi?ral Therapy" OR "Cognitive Therapy" OR psychoanaly* OR psychodynamic).

Please see Appendix A for the full list of search terms by database.

**Screening Methodology**

Reviewer 1 (R1) imported articles generated from the search into a reference management software and checked for duplicates. R1 and reviewer 2 (R2) then screened them for inclusion first by the title and abstract, then by a reading of the full text, with any disagreements resolved by discussion. The Rayyan platform was used for team members to be able to discuss and review inclusion and exclusion decisions until a consensus was reached.

**Data Extraction**

R1 extracted the following data for each study: study design, participant characteristics and clinical presentation, intervention type, control or comparison, length of
treatment, primary outcomes, secondary outcomes, and adverse events. Studies were grouped by therapeutic modality.

Analysis

Due to the variety of study designs, we took a mixed method approach to synthesise outcome data. To undertake a meta-analysis, we defined a priori on PROSPERO that we required at least three studies of moderate or above quality using the same modality of psychotherapy.

Findings were considered statistically significant when the p-value was below 0.05. Where possible, an effect size (Hedges’ $g$) was calculated for each study at each time point for each outcome of interest (i.e., psychotic symptoms, depression, anxiety, PTSD symptoms, social functioning). Hedges’ $g$ was chosen as it has superior properties to Cohen’s $d$ with small sample sizes (see Cumming, 2012). We interpreted these using Cohen’s (1988) established conventions (large = 0.8, medium = 0.5, small = 0.2). See Appendix B for details and formulae regarding how Hedges’ $g$ was calculated.

A narrative synthesis of quantitative outcomes was also undertaken, grouping by modality of psychotherapy, including any relevant information about tolerability or acceptability of these interventions.

Risk of Bias and Quality Assessment

R1 and reviewer 3 (R3) undertook a risk of bias and quality assessment. Any discrepancies between reviewers were resolved through discussion and by consensus. If agreement could not be reached, Reviewer 5 (R5) was consulted to resolve this. Level of evidence was decided (Centre for Evidence-Based Medicine, 2009).

Quality scores for each included study were presented within a table. For RCTs, the risk of bias was assessed using the Cochrane Risk of Bias 2 tool (Sterne et al., 2019),
resulting in a rating of high, low, or some concerns. For case series, the Quality Appraisal Tool for Case Series Studies (Institute of Health Economics, 2014) was used. For case reports, the Joanna Briggs Institute Checklist for Case Reports (Moola et al., 2020) was used.

Clinical Recommendations

We followed GRADE guidance for clinical recommendations (Centre for Evidence-Based Medicine, 2009).

Results

We identified seventeen studies that quantitatively measured psychotic symptoms in adults undergoing TFPT. Details of the selection process and exclusions at each stage are presented in the PRISMA flowchart (Figure 1) (Moher et al., 2009).

Overview of Studies

The included studies varied in design, with four randomised controlled trials (RCTs), eight uncontrolled case series studies and five case studies. Table 1 provides a summary of the characteristics, primary outcomes, secondary outcomes, and adverse events of each study.

Six studies investigated EMDR (two of which also investigated PE), one investigated a combination of EMDR plus TFCBT, four investigated TFCBT, three investigated TICBT, and one study each investigated “phasic trauma treatment” for dissociative identity disorder (DID), imagery rescripting, video testimony and trauma management therapy.

Fifteen studies reported on interventions delivered individually, with only one reporting on a group intervention and one with a mixture of group and individual work.
Sample

A total number of 857 participants were included in the studies in this review. Sample sizes ranged from 1 – 237.

Eleven studies required participants to have a diagnosis of or meet criteria for a psychotic disorder (e.g. schizophrenia, schizoaffective disorder or first-episode psychosis), three studies required only some level of psychotic symptoms, one study required a diagnosis of any “Serious Mental Illness” (which could include a psychotic illness), one study required a diagnosis of a personality disorder and one study required a diagnosis of DID. Nine of these studies concurrently required participants to either meet criteria for a PTSD diagnosis or experience significant PTS symptoms.

Twelve studies were conducted with outpatient samples, four with inpatient samples, and one study included both outpatient and inpatient samples.
Figure 1

PRISMA Flowchart

Records identified through database searching (n = 2,584)

Additional records identified through other sources (n = 13)

Records after duplicates removed (n = 2,043)

Records screened (n = 2,043)

Records excluded (n = 1,924)

Full-text articles assessed for eligibility (n = 119)

Full-text articles excluded (n = 102)
  - Psychotic symptoms not measured (n = 42)
  - Psychotic symptom change not reported quantitatively (n = 35)
  - Not intervention study (n = 15)
  - Full text unavailable (n = 5)
  - Not trauma-focused (n = 3)
  - No psychotic symptoms (n = 1)
  - Average age under 18 (n = 1)

Studies included in qualitative synthesis (n = 17)
### Table 1

**Summary of the Characteristics and Outcomes of Included Studies**

<table>
<thead>
<tr>
<th>Author</th>
<th>Level of Evidence</th>
<th>Design and n</th>
<th>Population</th>
<th>Trauma Type</th>
<th>Treatment and Dose</th>
<th>Medication</th>
<th>Comparison</th>
<th>Primary Outcomes</th>
<th>Secondary Outcomes</th>
<th>Adverse Effects</th>
<th>Dropouts</th>
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</thead>
<tbody>
<tr>
<td>Mueser et al. (2015)</td>
<td>1b</td>
<td>Multicentre RCT (n = 201, n = 201)</td>
<td>Diagnosis of schizophrenia, schizophrenia, and major depression or bipolar disorder (DSM-IV criteria); plus diagnosis of severe PTSD (based on CAPS).</td>
<td>TICBT (breathing retraining, psychoeducation, and cognitive restructuring); up to 16 sessions (lower limit not specified; length of time not specified)</td>
<td>Participants received &quot;usual programme (3 sessions; breathing retraining and psychoeducation)&quot; compared to brief treatment across post-treatment, 6-month and 12-months</td>
<td>Linear Regression (across post-treatment, 6-month and 12 months)</td>
<td>Linear Regression (across post-treatment, 6-month and 12 months): PANSS* Non-significant reduction of CBT as compared to brief treatment across post-treatment, 6-month and 12-months: F = 6.51, (p = .01), Hedges’ g = -0.29</td>
<td>Not reported.</td>
<td>TICBT: 22/92 = 24%</td>
<td>Brief Treatment: 4/88 = 5%</td>
<td></td>
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<tr>
<td>Author</td>
<td>Level of Evidence</td>
<td>Design and n</td>
<td>Population</td>
<td>Trauma Type</td>
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<td></td>
<td>BDI-II: Non-significant increase of CBT as compared to brief treatment</td>
<td>following treatment:</td>
<td>- 0.26</td>
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<td>BDI-II: Non-significant increase of CBT as compared to brief treatment at 6-months: -0.25</td>
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<td>BDI-II: Non-significant increase of CBT as compared to brief treatment at 12-months: -0.19</td>
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<td>BDI-II: Non-significant increase of CBT as compared to brief treatment at 12-months: -0.19</td>
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<td>BDI-II: Non-significant increase of CBT as compared to brief treatment at 12-months: -0.19</td>
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<tr>
<td>Author</td>
<td>Level of Evidence</td>
<td>Design and n</td>
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<tr>
<td>Steel et al. (2017)</td>
<td>1b</td>
<td>Multicentre RCT (n = 61, n = 50 following treatment/analysed, n = 47 completed follow-up/analysed)</td>
<td>Schizophrenia, schizo-affective disorder or schizophreniaiform disorder (DSM-IV criteria); plus PTSD (DSM-IV criteria);</td>
<td>The experience of a distressing psychotic episode (n = 11, 18% and sexual abuse whilst under the age of 16 years (n = 11, 18%). Other trauma types unreported as below 10% of the sample.</td>
<td>TICBT, up to 16 sessions (mean 12.6)</td>
<td>Participants continued to receive TAU, types and dose of medication decided by their NHS</td>
<td>TAU</td>
<td>LMM Analysis (Baseline to Post-treatment and 6 months):</td>
<td>LMM Analysis (Pre to 6-months and 12 months):</td>
<td>Not reported.</td>
<td>4/27 = 15%</td>
</tr>
</tbody>
</table>

PANSS Positive: Non-significant reduction of CBT as compared to TAU following treatment and 6-month follow-up. PANSS Negative: Significant reduction of CBT as compared to TAU following treatment; t = 2.31 (p = 0.03), Hedges' g = 0.45. Non-significant reduction of CBT as compared to TAU at 6-month follow-up.

BDP: Non-significant decrease of CBT as compared to TAU following treatment; t = 2.31 (p = 0.03), Hedges' g = 0.45. Non-significant increase of CBT as compared to TAU at 6-month follow-up.
<table>
<thead>
<tr>
<th>Author</th>
<th>Level of Evidence</th>
<th>Design and n</th>
<th>Population</th>
<th>Trauma Type</th>
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<th>Primary Outcomes</th>
<th>Secondary Outcomes</th>
<th>Adverse Effects</th>
<th>Dropouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trappler and Newville (2007)</td>
<td>4</td>
<td>Multicentre case series (n = 24, n = unclear)</td>
<td>Diagnosis of schizophrenia or schizoaffective disorder (DSM-IV)</td>
<td>Not reported.</td>
<td>12 weekly sessions of group TICBT</td>
<td>Not reported.</td>
<td>Pairs matched for age and diagnosis, underwent 12-week emotion regulation and therapy</td>
<td>Wilcoxon Signed Rank Test (pre and post): BPRS/Total: Significant decrease from baseline to 6-month follow-up</td>
<td>Wilcoxon Signed Rank Test (pre and post):</td>
<td>Not reported.</td>
<td>Not reported.</td>
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</tbody>
</table>

PSYRATS-AHRS*: Non-significant increase of CBT as compared to TAU following treatment and 6-month follow-up.

PSYRATS-DRS*: Non-significant increase of CBT as compared to TAU following treatment; non-significant decrease of CBT as compared to TAU at 6-month follow-up.

BAI: Non-significant reduction of CBT as compared to TAU following treatment and 6-month follow-up.

QLS*: Non-significant reduction of CBT as compared to TAU following treatment and 6-month follow-up.
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<th>Author</th>
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<th>Adverse Effects</th>
<th>Dropouts</th>
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<tbody>
<tr>
<td></td>
<td>completed/analyse criteria; plus PTSD criteria; (DSM-IV criteria); USA; 3 inpatient services</td>
<td>behaviour/coping strategies to trauma triggers</td>
<td>week supportive group therapy</td>
<td>post-treatment in the CBT group: $z = -4.20$ ($p &lt; 0.001$), $r = -0.9$. Non-significant decrease in the supportive psychotherapy group.</td>
<td>Non-significant decrease from baseline to post-treatment in the CBT group: $z = -3.47$ ($p = 0.001$), $r = -0.74$. Non-significant decrease in the supportive psychotherapy group.</td>
<td>BPRS subscale - hallucinatory behaviour: Non-significant decrease from baseline to post-treatment in the CBT group. Non-significant decrease in the supportive psychotherapy group.</td>
<td>BPRS subscale – unusual thought content: Significant decrease from baseline to post-</td>
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<td>treatment in the CBT group: ( z = -2 ) (( p = .046 )), ( r = -0.43 ). Non-significant decrease in the supportive psychotherapy group.</td>
<td>BPRS subscale – suspiciousness: Significant decrease from baseline to post-treatment in the CBT group: ( z = -4.24 ) (( p &lt; .001 )), ( r = -0.9 ). Significant decrease from baseline to post-treatment in the supportive psychotherapy group: ( z = -2.07 ) (( p = .039 )), ( r = -0.44 ).</td>
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TFCBT
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</thead>
<tbody>
<tr>
<td>Keen et al. (2017)</td>
<td>4</td>
<td>Case Series (n = 9, n = 8 following treatment, n = 7 at 6-month follow-up)</td>
<td>Schizophrenia spectrum disorder or PTSD or psychotic depression (ICD-10 criteria); all reported psychotic symptoms (PANSS); UK; 1 outpatient service</td>
<td>3 childhood or asylum seeking, 1 psychotic depression (ICD-10 unspecified), 2 childhood (unspecified), 2 adult (unspecified)</td>
<td>TF-CBTp (stabilisation, cognitive restructuring, exposure (imagery rescripting or reliving), schema reported)</td>
<td>All participants</td>
<td>N/A</td>
<td>Mean change: PSYRATS-AHRS: 63% showed reduction following treatment, 29% showed reliable change (RCI) at 6-month follow-up</td>
<td>Mean at baseline: 29.56 Mean at 6-month follow-up: 24.29</td>
<td>None: No adverse effects or symptom exacerbation</td>
<td>0/9 = 0%</td>
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<td></td>
<td></td>
<td></td>
<td>3 childhood</td>
<td>(stabilisation, were prescribed)</td>
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<td>multiple (2 asylum)</td>
<td>cognitive</td>
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<td></td>
<td>Mean at baseline: 13.57</td>
<td>BDI-II mean at baseline: 34.5</td>
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<td></td>
<td>Mean following treatment: 8.33</td>
<td>BDI-II mean following treatment: 24.9</td>
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<td></td>
<td>Mean at 6-month follow-up: 10.14</td>
<td>BDI-II mean at 6-month follow-up: 23</td>
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</tbody>
</table>

**BAI:** 63% showed reduction following treatment, 40% showed reliable change (RCI) at 6-month follow-up
Mean at baseline: 32.33
Mean following treatment: 21.4
Mean at 6-month follow-up: 20.33
<table>
<thead>
<tr>
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<th>Comparison</th>
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<th>Secondary Outcomes</th>
<th>Adverse Effects</th>
<th>Dropouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>McCartney et al. (2019)</td>
<td>3b</td>
<td>Case report (n=1)</td>
<td>First-episode psychosis (meeting criteria for EIP service); UK; outpatient service</td>
<td>Childhood abuse and neglect</td>
<td>TFCBT (coping skills, imagery rescripting exposure); 22 sessions (unknown length of time)</td>
<td>Not reported. N/A</td>
<td>PSYRATS-AHRS: Baseline: 36</td>
<td>IES: Baseline: 70 Post-intervention: 23 6-month follow-up: 31</td>
<td>Post-intervention: 27 6-month follow-up: 27</td>
<td>An increase in voice frequency occurred at mid-treatment, reliable but not clinically significant change Below level of probable PTSD</td>
<td>N/A</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Medication</th>
<th>Comparison</th>
<th>Primary Outcomes</th>
<th>Secondary Outcomes</th>
<th>Adverse Effects</th>
<th>Dropouts</th>
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</thead>
<tbody>
<tr>
<td>DASS: Baseline: 40</td>
<td></td>
<td>post intervention: 24 6-month follow-up: 31</td>
<td>This abided later in treatment.</td>
<td>No reliable or clinically significant change</td>
<td>N/A</td>
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<tr>
<td>Author</td>
<td>Level of Evidence</td>
<td>Design and n</td>
<td>Population</td>
<td>Trauma Type</td>
<td>Treatment and Dose</td>
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<tr>
<td>Calcott and</td>
<td>3b</td>
<td>Case study (n=1)</td>
<td>Schizophrenia; Childhood sexual abuse plus PTSD (ICD-10 criteria); UK; outpatient service</td>
<td>TFCBT (exposure, imagery rescripting; cognitive restructuring); 17 sessions (unknown length of time)</td>
<td>Unspecified antipsychotic and anti-depressant medication.</td>
</tr>
<tr>
<td>Standard (2004)</td>
<td></td>
<td></td>
<td>First-episode psychosis (meeting criteria for EIP service); UK; outpatient service</td>
<td>33 sessions of TFCBT and EMDR over 1 year (coping strategies, imagery rescripting, prolonged in-vivo exposure, exposure via EMDR, reliving)</td>
<td>Prescribed antipsychotic (unspecified) but not taking</td>
</tr>
<tr>
<td>Ward- Brown et</td>
<td>3b</td>
<td>Case study (n=1)</td>
<td>Childhood sexual abuse (single)</td>
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<td>al. (2018)</td>
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<td>Author</td>
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<td>de Bont et al. (2016)</td>
<td>1b</td>
<td>Multicentre RCT</td>
<td>Lifetime diagnosis of a psychotic disorder (MINI Plus criteria) plus chronic PTSD (DSM-IV-TR criteria on the CAPS); Netherlands; 13</td>
<td>60.6% sexual abuse, 38.1%</td>
<td>EMDR or PE; 8 weekly sessions</td>
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<td></td>
<td></td>
<td>n = 155, n = 155</td>
<td>(unspecified); sexual abuse</td>
<td>sexual abuse</td>
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<td></td>
<td>analysed, n = 130</td>
<td></td>
<td>childhood</td>
<td>childhood</td>
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<td></td>
<td>following</td>
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<td>criteria (multiple), PTSD</td>
<td>PTSD</td>
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<td></td>
<td>treatment, n = 128</td>
<td></td>
<td>completed 6-month follow-up</td>
<td>PTSD</td>
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<td>(DSM-IV-TR criteria)</td>
<td></td>
<td>on the CAPS); 13 traumatic</td>
<td>physical</td>
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<td></td>
<td>outpatient services</td>
<td></td>
<td>psychosis,</td>
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</table>

**BAI:**
- Baseline: 25
- Post-intervention: 13
- 6-month follow-up: 1

**WSAS:**
- Baseline: 19
- Post-intervention: 7
- 6-month follow-up: 0
<table>
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<tr>
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<tr>
<td></td>
<td>6.5%</td>
<td></td>
<td></td>
<td>childhood</td>
<td>antipsychotics</td>
<td>during the trial</td>
<td>significant reduction</td>
<td>across all time points</td>
<td>Significantly lower</td>
<td>exacerbation</td>
<td>significant</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>emotional</td>
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<td>for PE at 6-month</td>
<td>n or adverse</td>
<td>difference</td>
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<td>54.2%</td>
<td></td>
<td></td>
<td>abuse</td>
<td></td>
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<td>for PE following</td>
<td>events as compared</td>
<td>EMDR and</td>
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<td>other trauma</td>
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<td>across all time points</td>
<td>PE superior to TAU</td>
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<td></td>
<td>(including</td>
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<td></td>
<td>accident</td>
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<td>GPTS: Significantly lower</td>
<td>over time: t = −3.52</td>
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<td></td>
<td>disaster, war)</td>
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<td>at 6-month follow-up: t = −2.46 (p = .001)</td>
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<td>at 6-month follow-up: t = −2.86 (p = .005), Hedges’ g = 0.63</td>
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<td>PE superior to TAU</td>
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<td>significantly lower for PE</td>
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<td>at 6-month follow-up: t = −2.92 (p = .004), Hedges’ g = 0.64</td>
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<td>PE superior to TAU</td>
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<td>significantly lower for PE</td>
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<td>at 12-month follow-up: t = −3.03 (p = .003)</td>
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<td>changes on BDI-II</td>
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<td>PE superior to TAU across</td>
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<td>all time points:</td>
<td>between 6 month and 12-month</td>
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<td></td>
<td>t = −3.03 (p = .003)</td>
<td>follow-up (van den Berg et al., 2018)</td>
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<td>No significant changes on</td>
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<td></td>
<td>GPTS between 6 month and 12-month follow-up</td>
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<td></td>
<td>PSP: Non-significant increase of PE compared to TAU</td>
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<td>Author</td>
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<td>(van den Berg et al., 2018)</td>
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<td>GEE Sensitivity Analysis (Odds Ratio): Remission from psychotic disorders (SCI-SR-PANSS): PE participants significantly more likely to be in remission following treatment: OR = 3.39 (p = .008)</td>
<td>following treatment, 6-month follow-up, and across all time points</td>
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<td></td>
<td>EMDR superior to TAU following treatment: OR = 3.17 (p = .013)</td>
<td>Non-significantly more likely to be in remission at 6-month follow-up</td>
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<td>Paired sample t-test: PSP: Significant decline between 6 month and 12-month follow-up in PE: t = 4.31 (p &lt; .001)</td>
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<p>| PE superior to TAU across all time points: OR = 2.325 (p = .020) |
| No significant changes in the number of participants in remission at 12-month follow-up (van den Berg et al., 2018) |
| EMDR vs TAU | EMDR vs TAU |
| LMM Analysis (ITT) | LMM Analysis (ITT) |
| PSYRATS-AHRS: Non-significant reduction of EMDR compared to TAU following treatment and 6-month follow-up. Non-significant increase of EMDR compared to TAU following treatment, 6-month |
| BDI-II: Non-significant reduction of EMDR compared to TAU following treatment and 6-month |</p>
<table>
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<tr>
<th>Author</th>
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</table>

EMDR compared to TAU across all time points.

**GPTS:** Significantly lower for EMDR following treatment: $t = -2.68$ (p = .008), Hedges' $g = 0.6$

Non-significant reduction of EMDR compared to TAU at 6-month follow-up and across all time points.

**PSP:** Non-significant increase of EMDR compared to TAU following treatment, 6-month follow-up and across all time points.

No significant changes on any measure between 6 month and 12-month follow-up (van den Berg et al., 2018)

Paired sample t-test: **PSP:** Significant reduction between 6
<table>
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<tr>
<th>Author</th>
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<td></td>
<td></td>
<td>GEE Sensitivity Analysis</td>
<td>follow-up in EMDR: t</td>
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<td></td>
<td>(Odds Ratio):</td>
<td>= 2.08 (p = .044).</td>
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<td>Remission from psychotic disorders [SCI-SR-PANSS]:</td>
<td>EMDR participants</td>
<td>significantly more likely to</td>
<td>No significant changes in the number of</td>
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<td></td>
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<td>significantly more likely to be in remission following</td>
<td>be in remission following</td>
<td>treatment: OR = 3.17 (p = .013)</td>
<td>month and 12-month</td>
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<td>Non-significantly more likely to be in remission at</td>
<td>6-month follow-up.</td>
<td>Non-significantly more likely to be in remission</td>
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<td>Non-significantly more likely to be in remission</td>
<td>across all time points.</td>
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<td>Kim et al. (2010)</td>
<td>2b</td>
<td>RCT (n = 45, n = 40 completed/analyse d, n = 29 assessed/analysed at 3-month follow-up)</td>
<td>Diagnosis of schizophrenia (DSM-IV criteria), inpatient stay of over 1 week; South Korea; 1 inpatient service</td>
<td>Not reported.</td>
<td>EMDR: three 60-90 minute sessions over three weeks chlorpromazine 520mg mean dose of over three weeks chlorpromazine equivalent at the time of entry into the study.</td>
<td>PMR: three 60-90 minute weekly sessions or TAU</td>
<td>Repeated Measures ANOVA:</td>
<td>Repeated Measures ANOVA:</td>
<td>None: no participant</td>
<td>EMDR: 2/15 = 13%</td>
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<td>Repeated Measures ANOVA:</td>
<td>Repeated Measures ANOVA:</td>
<td>None: no participant</td>
<td>EMDR: 2/15 = 13%</td>
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<td>PANSS Total: Non-significantly lower for EMDR as compared to PMR and TAU.</td>
<td>PANSS Total: Non-significantly lower for EMDR as compared to PMR and TAU.</td>
<td>None: no participant</td>
<td>PMR: 1/15 = 7%</td>
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<td>PANSS Positive: Non-significantly higher for EMDR as compared to PMR and TAU.</td>
<td>PANSS Positive: Non-significantly higher for EMDR as compared to PMR and TAU.</td>
<td>None: no participant</td>
<td>TAU: 2/15 = 13%</td>
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<td>PANSS Negative: Non-significantly lower for EMDR as compared to TAU.</td>
<td>PANSS Negative: Non-significantly lower for EMDR as compared to TAU.</td>
<td>None: no participant</td>
<td>TAU: No statistically significant difference in rate of dropout.</td>
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<td>Slotema et al. (2019)</td>
<td>4</td>
<td>Case series (n= 47, n completed/analyse d) = 32</td>
<td>Personality disorder (DSM-IV-TR criteria); plus PTSD (DSM-IV-TW criteria); Netherlands; 1 outpatient service</td>
<td>74% childhood trauma, 75% complex trauma, 17% accident, 4% war-related, 13% bullying, 46% physical abuse, 26% sexual abuse</td>
<td>EMDR; 1-15 sessions (4 median); participants were undergoing other therapies simultaneously in TAU (psychodynamic psychotherapy, 23%; CBT (2%), schema-focused therapy (18%), DBT (7%), supporting sessions (39%), family therapy (7%) or other therapy (5%))</td>
<td>52% total were prescribed medication: antidepressant, antidepressant, antipsychotics, benzodiazepines</td>
<td>Wilcoxon Signed Rank Test Last Observation Carried Forward (pre to post): PSYRATS-AHRS: Significant decrease from baseline to post: treatment: t = 7.94, (p &lt; .001), Hedges’ g = 2.26; EMDR treatment was carried forward: Non-significant decrease from baseline to post: treatment. (PAPER REPORTS AS NOT SIGNIFICANT)</td>
<td>t-test for dependent samples (pre to post): PDS: Significant decrease from baseline to post: the sample.</td>
<td>EMDR</td>
<td>15/47 = 32%</td>
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<tr>
<td>van den Berg and van der Gaag (2011)</td>
<td>4</td>
<td>Multicentre case series (n=27, n=22 completed/analyse)</td>
<td>PTSD [criteria not reported]; plus a lifetime physical abuse or threatening, experiences during psychosis or treatment, 22% sexual abuse, 15% other (e.g. accident or war), 4% emotional abuse</td>
<td>30% physical abuse or threatening, 30% schizophrenia, 30% PTSD [criteria not reported]; plus a lifetime physical abuse or threatening, experiences during psychosis or treatment, 22% sexual abuse, 15% other (e.g. accident or war), 4% emotional abuse</td>
<td>EMDR, 6 weekly 90 minute sessions, focused on trauma that caused PTSD (criteria not reported); plus a lifetime schizophrenia spectrum disorder (criteria not reported); during psychosis or treatment, 22% sexual abuse, 15% other (e.g. accident or war), 4% emotional abuse</td>
<td>93% antipsychotic, 30% antidepressant, 11% lithium, benzodiazepines</td>
<td>N/A</td>
<td>Wilcoxon Signed Rank Tests (pre and post): PSYRATS-AHRS: Significant reduction following treatment: [ z = -2.17 ] (( p &lt; .030 )), ( r = .33 ). PSYRATS-DRS: Significant reduction following treatment: [ z = -2.02 ] (( p &lt; .043 )), ( r = .30 ). PSYRATS total: Significant reduction following treatment: [ z = -2.67 ] (( p &lt; .008 )), ( r = .40 ).</td>
<td>Paired sample t-test (pre and post): CAPS: Significant reduction following treatment: [ t = 7.26 ] (( p = .000 )), Hedges’ ( g = 1.49 ). PSS-SRw: Significant reduction following treatment: [ t = 6.23 ] (( p = .000 )), Hedges’ ( g = 1.28 ). BDI-II: Significant reduction following treatment: [ t = 4.81 ] (( p = .099 )), Hedges’ ( g = 0.99 ).</td>
<td>3 participants</td>
<td>5/27 = 19%</td>
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<td>GPTS: Non-significant reduction following treatment.</td>
<td>BAI: Significant reduction following treatment: ( t = 4.4 ) (( p = .000 )), Hedges' ( g ) = 0.91.</td>
<td>2 participants contacted their case manager to discuss increased arousal. In both cases, a conversation about EMDR and potential temporary side effects helped reassure the participant.</td>
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<tr>
<td>de Bont et al. (2013a)</td>
<td>4</td>
<td>Case series (n = 10; n = 10 analysed; n = 8 completed)</td>
<td>Under treatment for current 20% violence, 20% adult 12 90-minute PE or EMDR; up to 90-minute</td>
<td>Unspecified medication</td>
<td>N/A</td>
<td>Wilcoxon Pairwise Test: PSYRATS-AHRS: Non-parametric Test: Wilcoxon Pairwise Test:</td>
<td>None: no participants showed an</td>
<td>EMDR: 1/5 = 20%</td>
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1 participant had a single relapse into drug use after leaving the home for the first time alone in years.

No other adverse events were reported.
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<tr>
<th>Author</th>
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<td></td>
<td>70% childhood emotional abuse, 30% childhood sexual abuse, 30% childhood physical abuse, 10% adulthood physical abuse, 10% childhood bullying, 10% war</td>
<td>sessions (unknown length of time)</td>
<td>all. No changes</td>
<td>following treatment and 3-month follow-up as compared to baseline.</td>
<td>PSS-SR: Significant decrease following treatment: ( r = .73 ) (( p \leq .001 ))</td>
<td>increase in symptoms or deterioration</td>
<td>PE: 1/5 = 20%</td>
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<td>PTSD (DSM-IV criteria); Netherlands, 1 outpatient service</td>
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<td>PSYRATS-DRS: Non-significant decrease following treatment and 3-month follow-up (( p &lt; .001 ))</td>
<td>n in social functioning</td>
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<td>CAPS: Significant decrease following treatment: ( Z = -2.52 ) (( p = .012 )), ( r = .63 )</td>
<td>adverse events.</td>
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<td>OQ-45: Significant decrease following treatment: ( Z = -2.19 ) (( p = .028 )), ( r = .69 ) and 3-month follow-up: ( Z = -2.37 ) (( p = .018 )), ( r = .75 ).</td>
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<td>Population</td>
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<td>Yaşar et al. (2018)</td>
<td>3b</td>
<td>Case study (n=1)</td>
<td>Schizophrenia (criteria not reported); Turkey; inpatient service</td>
<td>Childhood sexual abuse</td>
<td>EMDR; 2 sessions over 2 weeks</td>
<td>Antipsychotic N/A</td>
<td>PANSS: Baseline: 78 5-month follow-up: 34</td>
<td>CAPS: Baseline: 96 5-month follow-up: 12</td>
<td>BPRS: Baseline: 37 5-month follow-up: 3</td>
<td>IES-R: Baseline: 53 Post-intervention: 25 5-month follow-up: 15</td>
<td>BDI:</td>
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<td>Design and n</td>
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<tr>
<td>Loewenstein (2014)</td>
<td>4</td>
<td>Case Series</td>
<td>n=237, n=171</td>
<td>79% childhood</td>
<td>Physical trauma</td>
<td>Phasic Trauma</td>
<td>76% N/A</td>
<td>SCL-90, hearing voices item</td>
<td>ANOVA (across 6-, 18- and 30-month follow-up)</td>
<td>Not reported</td>
<td>Not reported</td>
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<td></td>
<td>n=171, n=111</td>
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<td>DID (criteria not reported); 19</td>
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<td>assessed/analysed</td>
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<td>many countries; many</td>
<td>physical</td>
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<td>following treatment</td>
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<td>childhood</td>
<td>dose not reported</td>
<td>antidepressant</td>
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<td>assessed/analysed</td>
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<td>emotional</td>
<td>(varied greatly)</td>
<td>anxiety</td>
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<td></td>
<td>assessed/analysed</td>
<td></td>
<td>abuse, 68%</td>
<td>(other)</td>
<td>medication</td>
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**Baseline:** 30
Post-intervention: 16
5-month follow-up: 11

**CDSS:** 16, N/A, 6
Baseline: 16
5-month follow-up: 6

**BAI:**
Baseline: 37
Post-intervention: 24
5-month follow-up: 4
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<th>Secondary Outcomes</th>
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<tbody>
<tr>
<td>Paulik et al. (2019)</td>
<td>4</td>
<td>Case series (n = 12, n = 11 completed)</td>
<td>Currently hearing voices; plus experiencing PTSD symptoms that appear directly or indirectly linked to the voices (no symptom threshold);</td>
<td>Childhood neglect, 86% Childhood sexual abuse</td>
<td>Imagery Rescripting (exposure); up to average 11.75 weeks (range 9-19)</td>
<td>83% N/A</td>
<td>LMM Analysis over time (baseline, mid-intervention, post-treatment): LMM Analysis over time (baseline, mid-intervention, post-treatment): PSYRATS-AHRS distress: PSYRATS-AHRS distress: PSYRATS-AHRS distress:</td>
<td>Significant reduction in voice hearing across all time points: F = 3.40 (p = .02) Hedges' g at 6-months of treatment: 0.16 Hedges' g at 18-months of treatment: 0.25 Hedges' g at 30-months of treatment: 0.32</td>
<td>Two 1/12 = 8%</td>
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<td></td>
<td>abuse, 17%</td>
<td>medication</td>
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<td>No significant increase from post-treatment at 3-month follow-up</td>
<td>decrease across all time points.</td>
<td>DASS anxiety: Non-significant decrease</td>
<td>events occurred.</td>
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<td>childhood</td>
<td>medication</td>
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<td>changes during trial</td>
<td>PSYRATS-AHRS</td>
<td>frequency:</td>
<td>across all time points.</td>
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<td>witnessing</td>
<td>medication</td>
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<td>PSYRATS-AHRS</td>
<td>frequency:</td>
<td>across all time points.</td>
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<td>violence/death h, 17%</td>
<td>medication</td>
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<td>PSYRATS-AHRS</td>
<td>frequency:</td>
<td>across all time points.</td>
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<td>adulthood</td>
<td>medication</td>
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<td>change during trial</td>
<td>PSYRATS-AHRS</td>
<td>frequency:</td>
<td>across all time points.</td>
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<td>witnessing</td>
<td>medication</td>
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<td>changes during trial</td>
<td>PSYRATS-AHRS</td>
<td>frequency:</td>
<td>across all time points.</td>
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<td>violence/death h, 8%</td>
<td>medication</td>
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<td>PSYRATS-AHRS</td>
<td>frequency:</td>
<td>across all time points.</td>
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<td>adulthood</td>
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<td>medication changes during trial</td>
<td>PSYRATS-AHRS</td>
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<td>across all time points.</td>
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<td>sexual assault</td>
<td>medication</td>
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<td>medication changes during trial</td>
<td>PSYRATS-AHRS</td>
<td>frequency:</td>
<td>across all time points.</td>
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</table>

**BAVQ**<sup>4</sup> (Malevolence):
Significant decrease across all time points: \( t = -7.47 \) (\( p < .001 \)), Hedges' \( g = 0.74 \)

**BAVQ** (Omnipotence):
Significant decrease across all time points: \( t = 2.22 \) (\( p = .033 \)), Hedges' \( g = 0.34 \)
<table>
<thead>
<tr>
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<th>Design and n</th>
<th>Population</th>
<th>Trauma Type</th>
<th>Treatment and Dose</th>
<th>Medication</th>
<th>Comparison</th>
<th>Primary Outcomes</th>
<th>Secondary Outcomes</th>
<th>Adverse Effects</th>
<th>Dropouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strous et al. (2005)</td>
<td>4</td>
<td>Multicentre case series (n=24, n=21 completed/analyzed)</td>
<td>Schizophrenia diagnosis, holocaust survivors; Israel; 2 inpatient services</td>
<td>Experience of the Holocaust session; 3 hours over 1 or 2 sessions (focusing on trauma, grief, loss)</td>
<td>Not reported</td>
<td>N/A</td>
<td>Paired t-test (baseline and post):</td>
<td>Paired t-test (baseline and post):</td>
<td>None: no short-term or long-lasting adverse events were reported</td>
<td>0/24 = 0%</td>
<td></td>
</tr>
</tbody>
</table>

Non-significant decrease across all time points.

PANNS total: Non-significant increase from baseline to post-treatment: t = 4.2, (p < .001)  
Hedges' g = 0.65 reported

PANNS positive: Non-significant decrease from baseline to post-treatment.

PANNS negative: Non-significant increase from baseline to post-treatment.

PANNS global: Non-
<table>
<thead>
<tr>
<th>Author</th>
<th>Level of Evidence</th>
<th>Design and n</th>
<th>Population</th>
<th>Trauma Type</th>
<th>Treatment and Dose</th>
<th>Medication</th>
<th>Comparison</th>
<th>Primary Outcomes</th>
<th>Secondary Outcomes</th>
<th>Adverse Effects</th>
<th>Dropouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arens (2014)</td>
<td>3b</td>
<td>Case study (n=1)</td>
<td>Combat PTSD and hallucinations; USA; 1 outpatient service</td>
<td>War</td>
<td>Trauma Management Therapy (15 VR assisted imaginal and in-vivo exposure with 14 group social and emotional skill sessions) over 3 weeks</td>
<td>Unspecified, no changes occurred throughout trial</td>
<td>N/A</td>
<td>significant increase from baseline to post-treatment.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No. auditory hallucinations per week:
- Baseline: 7
- Post-intervention: 21
- 3-month follow-up: ns in the first week

No. visual hallucinations per week:
- Baseline: 2
- Post-intervention: 28
- 3-month follow-up: 23

CAPS:
- Baseline: 91
- Post-intervention: 21
- 3-month follow-up: ns in the first week

PCL-M:
- Baseline: 64
- Post-intervention: 28
- 3-month follow-up: 23

Global Anxiety (0-10):
- Baseline: 6.4
- Post-intervention: 1.3

A slight increase in hallucinations.
<table>
<thead>
<tr>
<th>Author</th>
<th>Level of Evidence</th>
<th>Design and n</th>
<th>Population</th>
<th>Trauma Type</th>
<th>Treatment and Dose</th>
<th>Medication</th>
<th>Comparison</th>
<th>Primary Outcomes</th>
<th>Secondary Outcomes</th>
<th>Adverse Effects</th>
<th>Dropouts</th>
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</tbody>
</table>

3-month follow-up:

1.1

**No. social activities per week:**
Baseline: 0
Post-intervention: 5
3-month follow-up: 0

Note. a Positive and Negative Syndrome Scale. b Clinician Administered PTSD Scale. c Beck Depression Inventory-II. d Beck Anxiety Inventory. e Psychotic Symptom Rating Scale - Auditory Hallucinations Rating Scale. f Delusions Rating Scale. g Clinician-Administered PTSD Scale for Schizophrenia. h Beck Depression Inventory. i Quality of Life Scale. j Brief Psychiatric Rating Scale. k Impact of Events Scale. l Posttraumatic Diagnostic Scale. m Depression Anxiety Stress Scales. n Comprehensive Psychopathological Rating Scale. o Scale for the Assessment of Negative Symptoms. p Impact of Events Scale-Revised. q Work and Social Adjustment Scale. r Green et al. Paranoid Thoughts Scale. s Structured Clinical Interview for Symptoms of Remission for the PANSS. t Personal and Social Performance scale. u Hamilton Depression Rating Scale. v Hamilton Anxiety Rating Scale. w PTSD Symptom Scale - Self-Report. x Outcome Questionnaire-45.2. y Social Functioning Scale. z Calgary Depression Scale for Schizophrenia. aa Symptom Checklist-90-Revised. ab Beliefs About Voices Questionnaire. ac Perceived Stress Scale. ad PTSD Checklist – Military version.
**Quality Assessment – RCTs**

The outcome of the quality assessment tool for RCTs (ROB2; Sterne et al., 2019) is presented in Table 2. The publication by de Bont et al. (2016) did not report all relevant information about the trial design and so relevant information was gained from earlier publications (de Bont et al., 2013b; van den Berg et al., 2015).

All studies presented some concerns regarding risk of bias. Every included study was assessed as having a risk of bias related to missing outcome data. To compensate for this and thereby reduce the risk of bias, each author made clear that the dropouts were not likely to be systematic in nature by providing evidence to show that rates of dropout were equivalent across groups. Risk of bias related to randomisation was minimal in all studies, excepting Kim et al. (2010) which did not provide details on how participants were randomised to groups. However, the study did provide evidence that there were no significant differences between groups across relevant variables such as PANNS scores, thereby reducing this risk of bias. All studies, through the appropriate use of validated measures and blinding procedures were deemed at low risk of bias in the measurement of the outcome.

**Quality Assessment - Case Series**

The outcome of the quality assessment tool for case studies (IHE, 2014) is presented in Table 3.

The designs employed were heterogeneous. Overall, most were concluded to be appropriate and of a sufficient quality. Although all studies in this group were limited by the lack of a control group, each included study employed an appropriate prospective design, appropriate validated measures, and the use of appropriate statistical analyses.

However, we assessed two studies to be of a lower quality. Trappler and Newville (2007) evidenced poor and unclear reporting on many variables, including participant
characteristics, eligibility criteria, baseline measurements and information regarding dropouts (and consequently, on which participants the analyses were run) along with a lack of information regarding how blinding was conducted. Brand and Loewenstein (2014) included a highly heterogenous sample of participants at different points in their condition and treatment, and provided no information about if the therapists provided the trauma-focused therapy in the study received a standardised training or were evaluated on their adherence to protocols, raising questions of reliability. In addition, only subscales of the full measures were reported, raising questions of selective reporting bias. Nevertheless, we decided to include these studies due to a lack of research in this field.

**Quality Assessment – Case Report**

The outcome of the quality assessment tool for case reports (Moola et al., 2020) is presented in Table 4.

All studies were assessed to meet an appropriate quality level for inclusion. All studies appropriately laid out the impact of treatment by describing a baseline and post-treatment state, though we noted that three (Calcott & Standart, 2004; McCartney et al., 2019; Ward-Brown et al., 2018) did not appropriately lay out the history of the participant to contextualise and broaden out the treatment picture.
Table 2

RCT Quality Assessment

<table>
<thead>
<tr>
<th>Authors</th>
<th>Randomisation</th>
<th>Deviations from Intended Intervention</th>
<th>Missing Outcome Data</th>
<th>Measurement of Outcome</th>
<th>Selection of Report of Result</th>
<th>Overall</th>
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</thead>
<tbody>
<tr>
<td>de Bont et al. (2016)</td>
<td>Low</td>
<td>Low</td>
<td>Some concerns</td>
<td>Low</td>
<td>Low</td>
<td>Some concerns</td>
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<tr>
<td>Mueser et al. (2015)</td>
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<td>Some concerns</td>
<td>Some concerns</td>
<td>Low</td>
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<tr>
<td>Kim et al. (2010)</td>
<td>Some concerns</td>
<td>Low</td>
<td>Some concerns</td>
<td>Low</td>
<td>Low</td>
<td>Some concerns</td>
</tr>
<tr>
<td>Steel et al. (2017)</td>
<td>Low</td>
<td>Low</td>
<td>Some concerns</td>
<td>Low</td>
<td>Low</td>
<td>Some concerns</td>
</tr>
</tbody>
</table>
### Table 3

**Case Series Quality Assessment**

| Authors                        | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|--------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| de Bont et al. (2013a)        | Y  | Y  | N  | Y  | Y  | Y  | U  | Y  | Y  | Y  | N  | Y  | Y  | Y  | Y  | Y  | Y  | Y  | P  |
| Keen et al. (2017)            | Y  | Y  | N  | Y  | Y  | P  | N  | Y  | Y  | Y  | U  | Y  | Y  | Y  | Y  | Y  | Y  | Y  | P  |
| Paulik et al. (2019)          | Y  | Y  | N  | Y  | Y  | Y  | N  | Y  | Y  | Y  | N  | Y  | Y  | Y  | Y  | Y  | Y  | Y  | Y  |
| Slotema et al. (2019)         | Y  | Y  | N  | N  | Y  | Y  | N  | Y  | Y  | U  | Y  | Y  | Y  | N  | Y  | Y  | P  | Y  | Y  |
| Van der Berg and Van der Gaag (2012) | N  | Y  | Y  | U  | Y  | Y  | U  | Y  | Y  | Y  | U  | Y  | Y  | Y  | N  | Y  | Y  | Y  | Y  | P  |
| Trapper and Newville (2007)   | P  | Y  | N  | N  | N  | P  | U  | Y  | Y  | Y  | N  | Y  | Y  | Y  | N  | Y  | N  | N  | Y  | N  |
| Brand and Loewenstein (2014)  | Y  | Y  | Y  | N  | Y  | Y  | N  | N  | Y  | Y  | N  | Y  | Y  | Y  | Y  | Y  | Y  | N  | Y  | N  |
| Strous et al. (2015)          | Y  | Y  | Y  | N  | P  | Y  | U  | Y  | N  | Y  | N  | Y  | Y  | Y  | Y  | Y  | Y  | Y  | Y  | P  |

*Note.* Y = Yes. N = No. P = Partial. U = Unclear. Please see Appendix C for the full list of quality appraisal questions by number.
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<tr>
<td>Arens (2015)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Include</td>
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<tr>
<td>Callcott and Standart (2004)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>McCartney et al. (2019)</td>
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<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Ward-Brown et al. (2018)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Yasar et al. (2018)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Include</td>
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</table>
What is the Effectiveness of Trauma-Focused Psychotherapies for Psychotic Symptoms?

A summary of all outcomes can be found in Table 1. Given only four controlled studies and significant heterogeneity within them in terms of type of intervention and measures used, based on our a priori criteria it was not possible to conduct a meta-analytic synthesis.

Interventions Not Using Exposure

Trauma-Informed CBT. Two of these studies (Meuser et al., 2015; Steel et al., 2017) followed the same protocol teaching cognitive restructuring to challenge trauma-related thoughts and beliefs that are thought to underlie PTSD symptoms (e.g. “I am responsible for the abuse”; “I am still in danger”). The third study (Trappler & Newville, 2007) utilised Cloitre’s Skill Training in Affect Regulation (STAIR; Cloitre et al., 2002) preparatory work, including emotion regulation skills and behavioural coping strategies for trauma triggers.

Two RCTs investigated TICBT (Meuser et al., 2015; Steel et al., 2017), finding no evidence for the efficacy of TICBT in reducing psychotic symptoms as compared to their control groups (brief treatment plus TAU and TAU respectively). Steel et al. (2017) found some limited evidence for an impact on negative psychotic symptoms following treatment as compared to TAU which was not sustained at 6-month follow-up. However, a case series (Trappler & Newville, 2007) found significant decreases in the BPRS total ($r = -0.9$) and BPRS unusual thought content (delusions; $r = -0.043$) and suspiciousness (paranoia; $r = -0.44$) subscales, with only the latter of these also achieving a significant reduction in the matched group undergoing supportive psychotherapy. However, the study did not find a significant decrease on the BPRS hallucinatory behaviour subscale. Indeed, no TICBT study found an impact on hallucinations.

Secondary Outcomes. One of the two controlled studies (Meuser et al., 2015) found a small but significant reduction in CAPS scores (clinician-rated PTSD symptoms) as
compared to the brief treatment plus TAU programme ($g = -0.26$ following treatment),
whilst the other found (Steel et al., 2017) found no significant impact on CAPS-S scores as
compared to TAU. The non-controlled study (Trappler & Newville, 2007) found a significant
effect for its treatment programme on IES scores (self-rated PTSD symptoms) ($r = -0.74$),
with no effect found in its matched supportive psychotherapy group.

The two controlled studies reported on several other secondary outcomes. Neither
found a significant impact for the cognitive restructuring programme over their control
groups for depression or anxiety. Steel et al. (2017) reported on QLS scores (quality of life)
and found no significant impact over TAU.

**Interventions Using Exposure**

**Trauma-Focused CBT.** The included TFCBT studies undertook exposure in ways that
would meet the definition of TFCBT by Ehlers and Clark (2000) in enabling formal memory
reprocessing, such as imagery rescripting, reliving and in-vivo exposure. The emphasis given
to each of the elements of TFCBT varied from one study to another with no single unifying
protocol in use.

There was evidence in favour of TFCBT. Keen, Hunters and Peters’ (2017) case
series study found reductions in PSYRATS-AHRS (auditory hallucinations) and PSYRATS-DRS
(delusions) scores, 29% and 43% respectively of which remained clinically significant at 6-
month follow-up. Of the case studies, two (Calcott & Standart, 2004; Ward-Brown et al.,
2018) found good reductions in their measures of psychotic symptoms (CPRS and SANS;
PSYRATS-AHRS respectively). The other included case study (McCartney et al., 2019) found
a reliable but not clinically significant change in the PSYRATS-AHRS. However, the TFCBT
studies were non-controlled and had much smaller sample sizes than the TICBT studies.
Due to lack of statistical analysis conducted by the authors and lack of comprehensive raw
data, effect sizes were not able to be calculated for these studies.
**Secondary Outcomes.** There is consistent evidence of reduction in PTSD symptomology in all the TFCBT studies, with particularly striking drops in the case studies as expected. Consistent reductions in depression and anxiety measures were also found. Only one study (Ward-Brown et al., 2018) included a quality of life scale (WSAS), reporting a substantial decrease (which represents an improvement).

**EMDR.** All the EMDR studies included in this review reported using the standard eight-phase protocol (Shapiro, 2001). This protocol involves preparation of self-control techniques, identification of trauma memories, desensitisation to trauma memories through recall whilst undergoing bilateral stimulation (usually via visual tracking of the therapist’s finger) and installation of positive cognition.

EMDR had the greatest number of included studies, but the evidence was mixed, even within the two controlled studies. One RCT (de Bont et al., 2016) found EMDR was superior to TAU on the GPTS (paranoia) following treatment ($g = 0.6$). The therapeutic effect was not sustained at 6-month follow-up, but a significant effect was found across all time points. EMDR was associated with greater likelihood of remission from a psychotic disorder following treatment ($OR = 3.17$), but this finding had again abided by the 6-month follow-up. No significant impact on the PSYRATS-AHRS was found. The other included RCT (Kim et al., 2010) found no significant differences on the PANSS (psychotic symptoms) between EMDR and either of its two control conditions, TAU or PMR.

A case series (Slotema et al., 2019) found a small effect ($g = 0.2$) for EMDR from baseline to post-treatment on the PSYRATS-AHRS, but this finding did not survive sensitivity analysis with last observation carried forward. Another case series (van den Berg & van der Gaag, 2011) found small but significant effects on psychotic symptoms following treatment: reductions in the PSYRATS-AHRS ($r = .33$), PSYRATS-DRS ($r = .30$) and the PSYRATS total ($r = .40$). No significant impact on the GPTS was found. The final case series included (de Bont et
al., 2013a) combined participants that had undergone PE or EMDR as one treatment group and found no impact on the PSYRATS-AHRS or PSYRATS-DRS following treatment or 3-month follow-up.

One case study (Yaşar et al., 2018) found a reduction in psychotic symptoms as measured by the PANSS and BPRS at the 5-month follow-up (the measures were not completed following treatment).

**Secondary Outcomes.** Four studies (Slotema et al., 2019; van den Berg & van der Gaag, 2011; de Bont et al., 2013a; Yaşar et al., 2018) reported on self-report PTSD symptoms using the PDS, PSS-SR, PSS-SR and IES-R respectively, finding large reductions following treatment ($g = 2.26$, $g = 1.28$ respectively). Van den Berg and van der Gaag (2011), de Bont et al. (2013a) and Yaşar et al. (2018) also reported on the CAPS, finding significant decreases ($g = 1.49$, $r = .63$ respectively). No controlled study reported on PTSD symptomology.

For depression, the two controlled studies (de Bont et al., 2016; Kim et al., 2010) found no superior effect for EMDR over the control following treatment. Uncontrolled studies found reductions in depression measures (van den Berg & van der Gaag, 2011, $g = 0.99$), with Yaşar et al., 2018 finding a reduction on the CDSS, a depression measure which differentiates depression from the negative symptoms of psychosis. One controlled study measured anxiety (Kim et al., 2010) finding no effect for EMDR over PMR or TAU. Two uncontrolled studies reported reductions in anxiety measures, reaching significance when significance testing was possible (van den Berg & van der Gaag, 2011, $g = 0.91$). For quality of life measures, one controlled study (de Bont et al., 2016) found no superior effect on the PSP for EMDR over TAU following intervention or at 6-month follow-up, though there was a significant reduction between the 6 and 12-month follow-up. One uncontrolled study (de Bont et al., 2013a) found a significant decrease on the OQ-45.2 (representing an
improvement) following treatment ($r = .69$) and 3-month follow-up ($r = .75$), though the SFS was not found to change significantly.

**Prolonged Exposure.** Two studies undertook PE, an approach which involves formulation, development of an exposure hierarchy and systematic and repeated exposure (either in-vivo or imaginal) to trauma-related stimuli in accordance with the treatment manual protocol by Foa et al. (2007).

One RCT (de Bont et al., 2016) compared PE to TAU. It found a superior effect for PE over TAU in reducing GPTS scores (paranoid thinking) following treatment ($g = 0.63$), which was sustained at 6-month follow-up ($g = 0.54$), with PE superior to TAU over time. Furthermore, no significant changes on the GPTS were found between the 6-month and 12-month follow-up (van den Berg et al., 2018), meaning the reduction held. They also found that PE participants were significantly more likely to be in remission from a psychotic disorder at follow-up (OR = 3.39), and whilst this was not sustained at 6-month follow-up, PE was superior to TAU across all time points in regards to remission status. No significant impact for PE over TAU on the PSYRATS-AHRS was found.

A study that combined participants that had undergone PE or EMDR as one treatment group (de Bont et al., 2013a) has been reported above.

**Secondary Outcomes.** De Bont et al. (2016) reported on BDI-II (depression) and PSP (social functioning) measures, finding a significant ($g = 0.8$) and non-significant effect of PE over TAU respectively following treatment. BDI-II scores were also significantly lower for PE over TAU at 6-month follow-up ($g = 0.64$).

**Phasic Trauma Treatment for DID.** One case series investigated the effects of “phasic trauma treatment” for DID (Brand & Loewenstein, 2014), which involves a three-phase model of establishing safety and stability; confronting, integrating traumatic
memories by exposure and exploration; and integration of identities and rehabilitation into daily life as described in the Guidelines for Treating Dissociative Identity Disorder in Adults (International Society for the Study of Trauma and Dissociation, 2011). They found this treatment had a significant impact on a hearing voices item (derived from the SCL-90-R), with effect sizes growing larger the longer the person was in treatment (from $g = 0.16$ at 6 months in treatment to $g = 0.32$ at 30 months in treatment).

**Secondary Outcomes.** Brand and Loewenstein (2014) did not report on any secondary outcomes relevant to this review.

**Imagery Rescripting.** One case series investigated the effects of imagery rescripting (Paulik et al., 2019). In this study, the therapist and participant chose together which trauma to focus on, with special attention given to exploring links between trauma and voice hearing and rescripting those which appeared related if possible. This intervention had a beneficial impact on voice hearing, with PSYRATS-AHRS distress, PSYRATS-AHRS frequency and BAVQ (voice malevolence) seeing significant reductions ($g = 0.69$, $g = 0.74$, $g = 0.34$ respectively) following treatment which was sustained at 3-month follow-up. However, BAVQ (voice omnipotence) did not see a significant reduction following treatment.

**Secondary Outcomes.** Paulik et al. (2019) reported on the PSS (PTSD symptomology) finding a significant increase following treatment ($g = 0.74$). No significant effect was found on the DASS, either depression or anxiety subscales.

**Video Testimony.** One case series (Strous et al., 2005) investigated the effects of a video testimony intervention, where Holocaust survivors with a schizophrenia diagnosis gave a one-off video interview about their personal experience of the Holocaust, with a
focus on details about losses and grief experienced. No significant impact for this intervention was found on PANNS scores following treatment.

**Secondary Outcomes.** Strous et al. (2005) reported on the CAPS, finding a significant decrease following treatment ($g = 0.65$).

**Trauma Management Therapy.** One case study (Arens, 2014) looked at the effectiveness of Trauma Management Therapy (TMT; Turner et al., 2005) in a combat veteran. TMT is a multicomponent intervention incorporating both individual in-vivo and virtual reality assisted imaginal exposure sessions together with group social and emotional coping skills. It was found that the number of self-reported auditory and visual hallucinations declined from 7 to 1, and 2 to 0 respectively by 3-month follow-up.

**Secondary Outcomes.** Arens (2014) also reported on CAPS and PCL-M scores (PTSD symptomology) finding decreases in both at 3-month follow-up (91 to 33; 64 to 23). A self-rated global anxiety scale (0-10) decreased from 6.4 to 1.1 at 3-month follow-up. The number of social activities went from 0 to 5 following treatment but had returned to 0 by 3-month follow-up.

**What is the Tolerability and Acceptability of Trauma-Focused Psychotherapies in People with Psychotic Symptoms?**

41% of all studies (7/17) and 100% of the non-exposure based (3/3) protocols did not report on adverse events or harm. Of the exposure-based studies, 29% (4/14) did not report on harm. 36% (5/14) reported that there were no instances of adverse events or harm, with one (de Bont et al., 2016) reporting that fewer participants in the active condition (EMDR) experienced symptom exacerbation or adverse events than in the control (TAU) condition.
29% (4/14) reported a brief exacerbation early in treatment that abided later, sometimes with brief (i.e. one session or one conversation) additional support provided (e.g., psychoeducation about increased arousal when starting a new intervention). One (Slotema et al., 2019) reported exacerbation that may not have abided; in this case stress and an increase in instability leading to dropouts in 4/47 of their participants, with only 68% completing EMDR treatment.

Regarding acceptability, 17% (2/12) of studies did not report on dropouts (5 studies have not been included in this calculation due to being case studies). Amalgamating dropout rates within treatment modality (excluding again case studies), there was a dropout rate of 22% (26/119) within TICBT studies, 0% (0/9) within TFCBT studies, 23% (34/147) within EMDR studies and 24% (14/58) within PE studies and 3% for other interventions (1/36). In total, this results in a dropout rate of 22% (26/119) for non exposure-based protocols and 20% (49/250) for exposure-based protocols.

**Discussion**

In this systematic review of TFPT for psychotic symptoms with broad inclusion criteria we found seventeen studies. The studies were highly heterogeneous, with a variety of approaches and measures used. Only four were controlled, and only two of these used an exposure-based protocol. This indicates that the area remains under-researched. The effectiveness of TPFT differed by intervention, but it was found to be well tolerated.

**What is the Effectiveness of Trauma-Focused Psychotherapies for Psychotic Symptoms?**

The overall evidence paints a mixed picture for the effectiveness TFPT for psychotic symptoms. No controlled TICBT study found an impact on positive psychotic symptoms. Of all TICBT studies, only one uncontrolled study found significant impacts on positive
symptoms (delusions and paranoia; Trappler & Newville, 2007). TFCBT studies overall found a reasonable impact on psychotic symptoms, though they were all uncontrolled studies. EMDR had the greatest number of included studies, two of which were controlled. However, the evidence was mixed, with one RCT (de Bont et al., 2016) finding EMDR was superior to TAU in paranoia and remission status (but not hallucinations), whilst another (Kim et al., 2010) found no impact on any measure. Three of the four uncontrolled EMDR studies found effects on total psychotic symptoms (van den Berg & van der Gaag, 2011; de Bont et al., 2013a; Yaşar et al., 2018). The findings for PE were clearer, though there were only two studies. The second strongest effect found in the entire review (and the strongest within the controlled studies) was found for PE in reducing paranoia, alongside a substantially higher likelihood of being in remission from psychotic disorder following treatment, though there was no impact on hallucinations (de Bont et al., 2016). Additionally, de Bont et al. (2013a) found an impact on overall psychotic symptoms, though their analysis grouped PE participants together with EMDR participants as one trauma-focused group. The remaining studies were all uncontrolled and used a variety of approaches, though all included an element of exposure. Three of the four (Brand & Lowenstein, 2014; Paulik et al., 2019; Strous et al., Arens, 2014) found an impact on hallucinations, whereas one (Strous et al., 2005) did not.

These findings are broadly in-line with previous reviews. Our findings concur with Brand et al. (2018), who concluded that exposure-based protocols appeared most effective, along with TFPT appearing generally more effective for delusions than hallucinations. We also align with Bloomfield et al. (2020), who concluded there is preliminary evidence in favour of TFPT, but that the literature is presently too disparate and lacking in methodological rigour to draw firm conclusions.

**Secondary Outcomes**
Broadly speaking, most studies found that trauma-focused interventions were effective in reducing PTS symptoms, depression, anxiety and quality of life/social functioning. A minority of studies did not, such as Steel et al. (2017) who attributed this to a lack of exposure, which was concluded to be necessary for this population. de Bont et al. (2016) also found no impact of EMDR on depression, which stands it apart from every other study that measured the impact of EMDR (all of which used the same protocol) on depression. This may indicate it is an erroneous result.

Several different explanations may be applied to explain the heterogeneity in results.

**The Use of Exposure**

According to a widely accepted definition by Ehlers and Clark (2000), TFCBT has four key elements: psychoeducation, anxiety management, exposure, and cognitive restructuring of peri-traumatic appraisals. This review decided a priori to include any study which self-reported the use of a trauma-focused intervention. However, the TICBT studies in this review did not include an element of exposure, which would therefore not meet this definition. Eleven of the fourteen studies utilising exposure found a positive impact for TFPT on at least one psychotic symptom, whilst one of three of the studies not utilising exposure did.

A process analysis of recordings of intervention sessions from a TICBT study (Steel et al., 2017) concluded that there may not have been sufficient emotional processing of trauma memories to support adaptation in people with a psychotic disorder (O’Driscoll et al., 2016). This would indicate this protocol does not include a strong enough element of memory reprocessing for this patient group. Indeed, Steel et al. (2017) concluded: “current evidence indicates that exposure is required in order to treat trauma symptoms within this group” (pp.50).
Finding a superior effect for exposure-based treatments is in-line with a recent meta-analysis conducted by Brand et al. (2018), who concluded that exposure-based treatments for psychosis appear to hold the most promise. Exposure techniques that have been successfully used in studies in the current review include imagery rescripting, reliving, in-vivo exposure and virtual reality exposure.

Given that exposure is intended to facilitate memory reprocessing of a traumatic event, the greater impact for exposure on psychotic symptoms found in this study suggests a link between intrusive memories and psychotic symptoms. If PTS memories and intrusions are related to hallucinations, not using exposure, and therefore not facilitating enough memory processing, may explain why these studies returned non-significant results.

**Choice of Trauma Image Targeted for Memory Reprocessing**

A crucial point to consider regarding the studies in this review is that they were primarily oriented towards treating PTSD. This means the interventions were often not targeted to traumatic memories that may be directly or indirectly related to psychotic symptoms. This is relevant as previous research (Hardy et al., 2005; McCarthy-Jones et al., 2014) has found links between trauma memories and psychotic symptoms can be made in many (but not all) cases.

Several included studies which showed a positive effect of TFPT on psychotic symptoms described a participant which had clear links between the trauma they had experienced and the psychotic symptoms. For example, Arens (2014) described a person with visual hallucinations clearly related to war trauma (e.g. dead bodies of women in Islamic attire), whilst Yaşar et al (2018) described a person with beliefs that people carrying blue bags were agents of a blue-eyed abuser in the past. Similarly, van den Berg and van der Gaag (2011) described observing reduction of trauma-related intrusions and hallucinations in the same participants following memory exposure.
Paulik et al. (2019) also chose to focus their trauma intervention on traumas that appeared related to psychotic phenomena, and reported the largest effect sizes in the review \( g = 0.69 \) for distress and \( g = 0.74 \) for frequency of voices following treatment, maintained at 3 months. Across all participants, trauma memory intrusions and voices reduced concurrently, suggesting the two constructs are related. In this study, the connections between trauma and voices were assessed as ‘direct’ (e.g. content of a memory heard as a voice) or ‘indirect’ (content of the voice is thematically linked) as per the definition of Hardy et al. (2005). Though the study only included one participant with a ‘direct-only’ association, this was the only participant to have completely stopped hearing voices following treatment.

Such findings are in accordance with theories that similar mechanisms are involved in PTSD and psychotic symptoms (Morrison et al., 2003; Bloomfield et al., 2021) and that auditory hallucinations may be a type of posttraumatic intrusion related to a memory (Steel, 2015). This may mean that, when a person is able to construct a complete memory of the traumatic event through exposure during TFPT, the memory stops being retrieved involuntarily, through intrusions such as voices.

There could be variation between individuals in pathways between trauma and psychosis depending on factors including the type of trauma, meaning that TFPT may be more effective for certain kinds of trauma. For example, TFPT focusing on a traumatic event that occurred post-psychosis (such as a traumatic experience of hospitalisation) may have less impact on the psychotic symptoms themselves than focusing on a developmental trauma. This is in-line with the traumagenic neurodevelopmental model of psychosis (Read et al., 2014), which suggests that trauma resulting from developmental trauma represents a distinct group from hereditary or idiopathic psychosis (McCrory & Viding, 2015).

Indeed, a significant proportion of the included studies had significant proportions of post-psychotic trauma (Steel et al. 2017: 18%; de Bont et al., 2016: 18%; van den Berg &
van der Gaag, 2011: 30%) which may go some way to explaining null results for psychotic symptoms. Also, many did not specify the trauma type: there is also a clear and pressing need to explore and report upon the trauma type and look for differences in response to treatment.

**Differences in Psychotic Symptom Severity**

Overall, the included studies that were conducted on inpatient populations appeared to show a smaller effect. For example, one EMDR RCT on an outpatient population found significant effects (de Bont et al., 2016) whilst the other EMDR RCT (Kim et al., 2010) on an inpatient population did not. This is in-line with other literature in the area (e.g. Munro et al., 2005). This indicates that the effectiveness of TFPT could be impacted by the course and severity of the psychotic symptoms of the person with psychosis at the time of therapy. Patients at an acute stage of psychosis and early in their inpatient stays may receive less benefit due to a general amelioration of symptoms which typically occurs following admission, leaving little room for TFPT to make an additional impact.

Conversely, some studies which did not find a significant impact of TFPT on psychotic symptoms did not require a ‘minimum’ level of psychotic symptoms in their participants (e.g. Slotema et al., 2019; de Bont et al., 2013a). Taken together, this could indicate there is an ideal “window” of intervention for TFPT, where the symptoms are present enough to be problematic but not to the point of requiring admission into an inpatient unit.

**Differences in TFPT Dose**

Regarding the studies investigating TICBT or TFCBT, the minimum number of sessions given across all studies in their respective protocols was 12. However, for EMDR
studies, there was great variation in how many sessions were offered, from Kim et al.,
(2010) offering 3, to Slotema et al. (2019) offering up to 15. The number of sessions that are
required for EMDR to treat psychotic disorders is not known. Nevertheless, for psychotic
symptoms (especially severe), it is certainly possible that 3 sessions are not sufficient in
most cases, potentially explaining the lack of effect for the studies that offered fewer
sessions.

Differences in dose will likely impact upon capacity to formulate and consider an
appropriate target for TFPT. Kim et al. (2010) acknowledged that their offer of 3 sessions
meant their choice of trauma target was “arbitrary and broad” (pp. 101), ultimately finding
a non-significant result. Other studies, with a greater amount of time, were able to
appropriately choose trauma targets that may represent more fruitful targets. For example,
Keen et al. (2017) provided up to 66 sessions to their participants, enabling a detailed
formulation linking psychotic symptoms to trauma and a choice of intervention tailored to
this, thereby targeting psychotic and post-traumatic symptoms in an integrated fashion and
finding a positive result for TFPT.

What is the Tolerability and Acceptability of Trauma-Focused Psychotherapies in People
with Psychotic Symptoms?

The use of exposure for people with psychotic symptoms has been a cause for
concern for some clinicians, who believe that exposure may cause harm by exacerbating
psychotic symptoms (Cragin et al., 2017). In this review, only one study (Slotema et al.,
2019) reported a symptom exacerbation that led to drop out, potentially explained through
a sample that differed from other included studies by being comprised entirely of those
with a personality disorder diagnosis. Though other studies did report an increase in
distress or symptom exacerbation, they also reported that this abided in following weeks of
treatment. A temporary symptom exacerbation is a pattern that is typical for exposure in
trauma treatment, as it is designed to elicit and process distress that has been avoided in a safe environment (Foa et al., 2002). Indeed, a short-lived increase in distress can be anticipated in any form of psychotherapy (DeFife & Hilsenroth, 2011). Overall, the majority of those that reported on harm reported no harm, with one study (de Bont et al., 2016) reporting fewer adverse events in the TFPT group than the control. However, 41% (7/17) of all studies included in this review, and 29% (4/14) of exposure-based protocols, did not report on adverse events or harm. All studies should report on harm to its participants.

The majority of studies within this review reported on dropout rates, and there was a comparable dropout rate between non exposure-based (22%) and exposure-based (20%) protocols, indicating that exposure is acceptable to this client group. This is comparable to a dropout rate of 16% for CBTp (Lincoln et al., 2008) and is low compared to dropout rates for antipsychotic medication trials (Kemmler et al., 2005).

There remains therefore little to suggest that TFPT, and exposure specifically, have low tolerability or acceptability, and should not be considered to offer to people with psychotic symptoms. This finding is in concordance with that of van der Berg et al. (2016) who conducted a review of adverse events during PE or EMDR with people with psychosis, finding that these treatments were in fact associated with significantly less symptom exacerbation and adverse events than waitlist conditions.

**Strengths of This Review**

We pre-registered the review with PROSPERO and adhered to the robust criteria set out a priori.

This review’s broad inclusion criteria represent another strength. The review took a broad view of psychotic symptoms and did not limit inclusion criteria to any diagnosis or syndrome. The review also did not limit inclusion to a specific kind of trauma (such as developmental trauma).
Hedges’ $g$ was calculated for each where possible (a more reliable measure of effect size for small sample sizes (Cumming, 2012) for ease of comparison between studies.

**Limitations of This Review**

It has not been possible to meta-analyse the available data as we did not meet our a priori criteria due to the lack of controlled studies and variety of psychotherapeutic interventions. It was also not possible to calculate Hedges’ $g$ in every instance due to lack of raw data.

A further limitation is that the range of designs and risk of bias measures considered make the results difficult to compare and appraise.

There is a risk of selection bias in this review. Some forms of therapy would likely involve reappraisal of a trauma memory (e.g. learning that a traumatic experience was not their fault) and so could be described as trauma-focused according to our broad criteria, but would not necessarily have been picked up our search.

**Limitations of the Existent Literature**

As the evidence base is still emerging, the overall methodological quality of included studies was low. There were only four controlled studies included in this review, only two of which embarked upon a course of TFPT that would meet the criteria set out by Ehlers and Clark (2000). The quality of studies was impacted by low sample sizes, lack of blinding and other methodological issues.

As many studies did not specifically target psychotic symptoms (including them as a secondary measure), the inclusion criteria of studies did not always necessitate the high levels of psychotic symptoms in all participants, or for psychotic symptoms to be present at all (e.g. Slotema et al., 2019; de Bont et al., 2013a). This means the studies may have had low power to detect and may fall victim to floor effects (i.e., a type-II error).
The lack of psychotic symptom measurement within diagnoses that are strongly associated with psychotic symptoms was striking. The number of studies that met inclusion criteria through a quantitative measure of psychotic symptoms was low, with auditory hallucinations were by far the most measured psychotic symptom, with other symptoms (e.g. delusions and paranoia) not measured by all. Most of the included studies focused specifically on psychotic spectrum disorders. Studies focused on other disorders such as BPD most commonly did not include a measure of psychotic symptoms.

Clinical Recommendations

Assessing for Trauma (Recommendation Grade: A)

There is a clear need for clinicians to consider and assess for histories of trauma in people with psychotic symptoms. People with psychosis who have experiences of trauma should have further assessment for PTSD. The included studies as well as the broader literature reliably indicate a relationship between trauma and psychosis. Although this is recognised in latest NICE guidelines (2014), which calls for all people with psychosis to be assessed for PTSD, in routine clinical care trauma histories and the impact of trauma are often not considered in people with psychotic symptoms. A recent review showed that many people with psychosis are not even asked about trauma histories (Read et al., 2018).

Offering TFPT (PTS Symptoms Grade: A, Psychotic Symptoms Grade: C)

If trauma and PTS symptoms are assessed for and found, the present evidence suggests TFPT should be considered. The evidence for TFPT in reducing PTS symptoms in people with psychosis in this review was consistent, though this was not the focus of the review and has been systematically reviewed previously (Sin & Spain, 2016; Swan et al, 2017), with the recommendation to offer it.
For the treatment of psychotic symptoms, the evidence was more mixed, though this can partially be attributed to high levels of heterogeneity in approaches and varying levels of evidence. Whilst there was consistent evidence in support of TFCBT, the studies were small and uncontrolled. The EMDR studies were mixed, with the two large RCTs finding opposing results. The best evidence found in this review was in support of PE (de Bont et al., 2016) and imagery rescripting (Paulik et al., 2019), though this recommendation must come with caution as there was only one study for each of these approaches. However, taken together these approaches have much in common as both utilise prolonged and repeated exposure to trauma-related stimuli. More research using well-controlled designs is vital to confirm these tentative results.

It has been commented upon that many therapists are reluctant to engage in TFPT with psychotic patients for fear of causing harm (Cragin et al., 2017). There remains some debate around whether preparatory or “stabilisation” work is necessary, with some (e.g. van den Berg & van der Gaag, 2011) believing that stabilisation phases are not necessary and simply add to treatment delay, whilst others (e.g. Ward-Brown et al., 2018; Trappler & Newville, 2007) believing it to be essential to prepare patients to manage the demands of trauma-focused work. However, most protocols in the included studies did not include a stabilisation phase and found low levels of harm. Nevertheless, in offering TFPT to patients, it is ethical to acquire informed consent by ensuring the patients are on-board with the approach and are willing to address their trauma sequelae. Despite ongoing debate, it is the finding of this review that TFPT are well-tolerated by this population, and so TFPT should not be withheld from all patients by default for fears of safety. Instead, decisions should be made on a case-by-case basis following assessment.

*Using Exposure and Formulation (Recommendation Grade: C)*
A formulation or case conceptualisation was used in the two studies with the greatest impact on psychotic symptoms (de Bont et al., 2016; Paulik et al., 2019). In addition, given the suggestion of greater effect sizes for participants whose trauma can be related to their psychotic symptoms (Paulik et al., 2019), therapists can consider exploring and formulating potential links between trauma and psychotic symptoms to build shared understanding, thereby informing goals and the potential utility of targeting this trauma with TFPT. Collaboratively developing a formulation which considers the genesis and maintenance of trauma-related psychotic symptoms can enable the therapist to provide rationale for targeting a range of psychotic symptoms, such as exposure to memories that may be ‘echoes’ of a past trauma, or by providing less distressing alternatives to post-traumatic or delusional beliefs. Building rationale in this way may also serve to address any fears around exposure techniques or ambivalence about engagement generally.

A shared formulation also helps to normalise a person with psychosis’ experiences and to improve the therapeutic relationship, both of which are considered of particular importance in working with people with psychosis (Morrison et al., 2004) and seems more important still in light of trauma-focused work. The process of collaboratively building a formulation and utilising the patient’s expertise will also help to develop the therapeutic relationship.

**Appropriate Treatment Length (Recommendation Grade: A)**

Due to the value of formulation and building understanding, it is recommended to consider allowing enough sessions to do this. More sessions would also help to accommodate for cognitive processing difficulties associated with psychosis (Barch & Sheffield, 2014). This review is not able to ascertain the appropriate dose of TFPT for people with psychosis, though common sense would indicate that greater severity may require more time to build a therapeutic relationship, unpick histories to explore links to
trauma and to progress into treatment. Appropriate length is also likely to vary dependent on buy-in to therapy and drive to work on trauma and psychotic symptoms.

Nevertheless, Paulik et al. (2019), reflecting what is actually available in their local setting, offered only 10 sessions to people with severe levels of distress and intensity for voices (mean of 16/20 for distress, 9/12 for severity on PSYRATS-AHRS) and found the highest effect sizes in the review, although all these participants were able to make links between the trauma and the voices. For participants not readily able to make these links, time required may be longer.

**Ongoing Multidisciplinary Treatment (Recommendation Grade: A)**

When it was reported upon, every included study noted their participants were concurrently in receipt of TAU from their mental health service, often including prescription of psychiatric medication. It is therefore not possible at this stage to say TFPT could be effective without continuing multidisciplinary input and medication, and evidence has shown more generally that therapy in combination with medication is the most effective (Cuijpers et al., 2014).

**Research Recommendations**

**More Research on TFPT**

The evidence base for the use of TFPT in people with psychotic symptoms remains in its infancy. Trauma-focused intervention outcome trials have historically excluded participants with co-morbidity, with presence of a psychotic condition the most prevalent exclusion criteria for RCTs (Spinazzola et al., 2005). This is often related to concern from clinicians that trauma-focused interventions, especially exposure, may exacerbate psychotic symptoms (Cragin et al., 2017) or practical concerns that people with psychosis are more likely to drop out (Callcott et al., 2004). However, we found comparable levels of dropout to
other studies and little evidence for harm or exacerbation of symptoms. Despite this, we found no controlled studies at all conducted using TFCBT. As such, more research on TFPT with exposure should be conducted, including the measurement of psychotic symptoms in non-psychotic spectrum disorder research.

Some promising controlled research is currently being planned or conducted, such as Valiente-Gómez et al. (2020) and Peters (2020). We welcome this and look forward to their findings.

**Consideration of the Relationship Between Trauma Type and Response to TFPT**

Given evidence of greater effect sizes for TFPT on psychotic symptoms in the studies which formulated and/or chose to focus on traumas that may be related to psychotic symptoms, this may represent a target group for future studies. Future research can compare efficacy for those with strong links between trauma and psychotic phenomena and those who do not, thus uncovering further evidence as to whether TFPT for psychotic symptoms may be more effective when links are strongest. Such a study could also investigate if there is a difference in efficacy between people that identify a direct (e.g. hallucination as a trauma memory) or indirect (content is thematically linked) association between the trauma and the psychotic symptoms.

**Exploration of the Relationship Between PTS and Psychotic Symptoms**

Future research should investigate mechanistic relationships between PTS and psychotic symptoms, including in response to treatment. Research can benefit from statistically analysing if reductions following TFPT in PTS symptoms are related to reductions in psychotic symptoms. Large, controlled studies with frequent and regular measurements will be vital to investigate temporal relationships between PTS and psychotic symptoms. This research should include neuroimaging to help understand
underlying neurocognitive mechanisms underlying treatment response. Such research can also help move our understanding of the links between trauma and psychosis beyond correlational and associational research paradigms, helping to establish causality whilst avoiding clear ethical concerns with manipulating trauma exposure directly.

Research paradigms can consider whether psychosis in the context of trauma could sometimes be considered a psychotic form of PTSD, or PTSD with psychotic features. This can contribute to discussions on whether the diagnostic system should be reformulated for ICD12.

**Standardisation of Measures**

Future research will benefit from a standardisation of the measure used for psychotic symptoms to enable direct comparison between studies. The diversity of measures currently used in the literature serves as a barrier to understanding, obfuscating potentially promising conclusions. Though this review is not able to suggest a specific measure, such a measure should evidence validity, reliability and application to different populations and clinical settings.

In addition, only one included study (Arens, 2014) assessed for the impact of TFPT upon hallucinations in non-auditory modalities. Monitoring hallucinations in all modalities is recommended for future research. Finally, distress associated with psychotic symptoms should also be measured.

**Conclusion**

We have found some evidence of effectiveness for TFPT, and some tentative themes have arisen through observing commonalities between the more effective interventions, such as the use of exposure. There was also some evidence that TFPT may be most helpful for people are able to consciously make connections between their psychotic
symptoms and trauma they have experienced, either directly (i.e. in terms of content) or indirectly (i.e. in terms of themes). Whilst a significant proportion did not report on tolerability or acceptability, a larger proportion did, and from the available data TFPT was well tolerated and acceptable. However, our review indicates this area is under-researched. There is a lack of high-quality controlled studies utilising TFPT with exposure for people with psychotic symptoms. Further evaluation of TFPT for psychotic symptoms is needed, focusing on well-controlled designs.
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Part 2: Empirical Paper

The relationship between schemata and psychotic symptoms in adult survivors of developmental trauma: A mixed methods study
Abstract

**Background:** Experiencing developmental trauma (DT) can give rise to negative schemata regarding the self and others, and increase risk of psychosis. These negative schemata have been implicated in the processes underlying how DT induces vulnerability to psychosis. Understanding schema-based processes involved in psychosis may help improve and refine treatments as they are not targeted by existing psychotherapies for psychosis. **Aims:** This study used mixed quantitative and qualitative methods to explore the relationship between DT, schemata, and psychotic symptoms (delusions, paranoia, and hallucinations) from a community sample of healthy and ‘ultra-high risk’ (UHR) for psychosis participants.

**Method:** 869 participants completed quantitative instruments. 15 UHR participants participated in individual structured interviews. Framework analysis was used to analyse the interviews. **Results:** Across all participants, self-negative and other-negative schemata partially mediated the relationship between DT and psychotic symptoms (self-negative: \( B = .05 \), bootstrap 95%CI = .04-.06; other-negative: \( B = .05 \), bootstrap 95%CI = .04-.07). Within UHR, the strongest mediational relationship was found between DT, other-negative schema, and paranoia (\( B = .01 \), bootstrap 95%CI = .01-.02). The framework analysis revealed themes from DT to self-negative schemata centred in part around internalisation of abusers’ messages and vulnerability and to other-negative schemata around a lack of trust. Prevalent themes between self-negative schemata and psychotic symptoms centred in part around defectiveness, whilst themes between other-negative schemata and psychotic symptoms were around others being dangerous and devious. **Conclusions:** A cognitive pathway between DT and later psychosis appears to be partially dependent on negative schemata, contributing to risk of psychosis in tandem with DT. This study provides new insights into schemata in a subclinical population and provides important data to guide ongoing and future development of treatment approaches for psychosis.
Introduction

Psychosis is a condition whereby people can perceive and/or interpret the environment differently to those around them, losing some contact with reality. This can involve experiencing hallucinations, delusions and/or paranoia (known together as positive symptoms). Experiencing psychosis has been linked to a range of adverse life experiences and circumstances, including poverty, discrimination, and unemployment (Read et al., 2008). The life expectancy of people with psychosis is significantly reduced (Saha et al., 2007) due to suicide and greater health problems (Yuen et al., 2014).

Psychotic symptoms are most commonly associated with schizophrenia spectrum disorders but can also form part of other psychiatric conditions. Epidemiological data has led some researchers to conceptualise psychotic symptoms as a transdiagnostic phenomenon (van Os & Reininghaus, 2016).

Developmental Trauma and Psychosis

In recent years, research has considered the relationship between psychosis and exposure to experiences of abuse and neglect in childhood and adolescence, hereon referred to as developmental trauma (DT). Experiences of DT are more frequent in people with psychosis than in people with other mental health diagnoses (Spence et al., 2006). DT has been strongly associated with a later diagnosis of schizophrenia or other psychotic disorder (see e.g. Heins et al., 2011). DT has also been associated with psychotic symptoms and subthreshold psychotic experiences (e.g. Arseneault et al., 2011), with evidence fulfilling the Bradford Hill (1965) criteria indicating this relationship is likely to be causal (Bloomfield et al., 2020a).

A review of seventeen studies of symptomology and twenty-seven imaging studies found evidence to suggest that adult survivors of DT with psychosis (ASDTP) may represent a distinct group from idiopathic psychosis (Bloomfield et al., 2020b). Health outcomes are
worse for this population, with greater symptom severity (Mondelli et al., 2015) and reduced treatment outcomes (Aas et al., 2016) between ASDTP and people with psychosis who have not experienced DT. Given this evidence, it is imperative to improve treatments for this population. Understanding psychological processes that underlie the link between DT and psychosis could help the development of targeted treatments.

Mechanisms Between DT and Psychosis

Research that has considered various mechanisms that could underlie the relationship between DT and psychosis is in its relative infancy. One purported mechanism are schemata, dynamic constellations of cognitions, feelings, and motivations, described by Young (1994) as “broad, pervasive themes regarding oneself and one’s relationship with others, developed during childhood and elaborated throughout one’s lifetime”. Schemata have been suggested as potential mediators due to their influence on responses to social situations and interactions with the world (Fowler et al., 2006) and the role of childhood experiences in their development. This means DT is likely to have an impact on healthy, adaptive schema development.

A recent systematic review (Williams et al., 2018) and meta-analysis (Bloomfield et al., 2021) found that negative or maladaptive schemata mediate between DT and psychosis, alongside other mechanisms such as emotional dysregulation, post-traumatic sequelae, and PTSD symptoms. Schemata have also been linked to specific psychotic symptoms. They have been implicated as a mechanism underlying the content of auditory verbal hallucinations (AVH) by Scott et al. (2020), who found that negative self-schemata partially predicted the proportion of negative AVH content experienced by voice hearers. However, negative schemata have been most strongly linked to paranoia above other psychotic symptoms (e.g. Gracie et al., 2007). There is therefore evidence to suggest that negative
schemata, developed as a result of DT, may induce vulnerability to psychosis and/or contribute to the maintenance of symptoms.

However, it is important to note that psychosis is a heterogenous phenomenon with a range of potential causal processes. Indeed, a review by Cruz et al. (2019) identified great variation between people in the brain areas that are activated during AVH, suggesting there are a variety of neurocognitive and neurobiological underpinnings at work. Bentall et al. (2014) suggested that it is likely that distinct kinds of adversity will impact emotional and cognitive systems differently and indicate different causal pathways to psychosis. For example, highly affective traumatic experiences may lead to later intrusive memories of this trauma misinterpreted in a psychotic way in an error of source monitoring or information processing (Steel et al., 2005), whereas events that involve a pervasive threat from which escape is not possible are particularly linked to dissociation (Griffin et al., 1997). Equally, there may also be multiple etiological routes to phenomenologically similar symptoms (McCarthy-Jones et al., 2014). Nevertheless, the etiological route remains important: different mechanisms could indicate the use of different interventions targeted at different entities.

**Psychological Treatments for Psychotic Symptoms**

Several psychological models have sought to understand these associations and apply them to clinical practice. Cognitive-behavioural models of psychosis have long considered how trauma might give rise to and maintain psychotic symptoms (e.g. Garety et al., 2001; Morrison, 2001). Broadly speaking, in these models sensory-perceptual intrusions are appraised in line with the individual’s schematic beliefs and prior experiences, which would include DT in those who have experienced DT. For example, a person who has survived DT could develop a schema of others as dangerous, and so be more likely to make
a paranoid interpretation of an ambiguous social interaction. As these models consider sensory-perceptual intrusions a normal occurrence (in-line with a dimensional view on psychosis), is it these interpretations that define whether an experience is regarded as psychotic or not (Morrison et al. 2004). In this way, negative schemata have been suggested to contribute to the development and maintenance of psychosis by these models (as well as other models such as Freeman’s model of paranoia, 2007), and suggest factors that can be targeted to bring about positive change.

The use of such models within CBT for psychosis (CBTp) has been found to be broadly valuable in the treatment of psychosis (see e.g. Lincoln et al., 2012). However, given the established links to DT, there has been some recent research investigating if trauma-focused therapies (TFPT) could be effective for this population. There have been two reviews in this area to date with preliminary evidence suggesting that TFPT may be effective in reducing psychotic symptoms in trauma survivors. However, the first (Brand et al., 2018) found only small effects for TFPT on positive symptoms of psychosis which was not maintained at follow-up, whilst the second (Bloomfield et al., 2020a) acknowledged only preliminary evidence in support cognitive-behavioural therapies. Both reviews commented on the small number of studies and the low methodological quality of the literature.

Though there is tentative evidence in support of CBT and TFPT approaches for psychotic symptoms, TFPT typically focus on exposure and specific trauma sequelae (e.g. hypervigilance, cognitive avoidance, depression), with less attention given to the schemata the person may hold. Whilst CBTp approaches might consider schemata in their formulations, they are not typically considered a treatment target; the focus of treatment is primarily on automatic thoughts and interpretations of intrusions and psychotic phenomena, with a present-moment focus. Given the wealth of research indicating the role
of schemata in the aetiology and maintenance of psychotic symptoms in ASDTP, schemata could be a worthwhile additional target of psychological treatment. However, there has been little consideration of appropriate psychological treatments that could target schema-based processes. To the best of the author’s knowledge, no study has investigated the use of schema therapy with a psychotic population, with a systematic review of schema therapy finding no studies conducted with this population (Taylor et al., 2017). The lack of research into schema processes presents a barrier to advances in treatment.

The Psychosis Continuum

Psychotic experiences are present in the general population (around 7%; Linscott & van Os, 2013), with delusions of persecution and paranoia being amongst the most common (Nuevo et al., 2012). Psychotic experiences are commonly associated with a mood or anxiety disorder (Wigman et al., 2012). While these experiences are transient in most, around 20% of these go on to develop persistent psychotic experiences (Kaymaz et al., 2012). Dominguez et al. (2011) found in a longitudinal study that over 38% of clinical psychosis was preceded by subclinical psychotic experiences at least once. Taken together this indicates that a proportion of psychotic disorders could be understood as a poor outcome of a common phenotype.

This is in-line with a dimensional view on psychosis, where psychotic experiences lie on a continuum with ordinary experiences (van Os et al., 2009), rather than a categorical view in which there is clear delineation between psychotic and non-psychotic. Whilst subclinical psychotic symptoms are often distinguishable from those associated with psychiatric illnesses in terms of severity or frequency, at other times they may be indistinguishable in and of themselves, with the differences lying in appraisals and behavioural responses (Johns et al., 2014).
Much research supports the idea of a psychosis continuum, including findings of similar clinical profiles between individuals with subclinical psychotic symptoms and people with psychotic disorders (e.g. depression: Krabbendam et al., 2004; the shape of distribution of psychotic symptoms: de Rosse & Karlgodt, 2015), whilst genetic studies have found more subclinical symptoms in relatives of people with schizophrenia (Tienari et al., 2003). In addition, a significant amount of literature supports the idea that the relationship between DT and psychosis persists with subclinical psychotic symptoms. Rossler et al. (2016) found in a cross-sectional study that subclinical psychotic experiences are related to DT (mediated by stress sensitivity) with longitudinal studies finding similar associations (e.g. de Loore et al., 2007). A further prospective study, on a nationally representative cohort, found dose-response relationships between DT and psychotic experiences (Kelleher et al., 2013). Collectively, this provides support for the idea that DT is linked to psychotic symptoms on a continuum.

The Present Study

We sought to address the knowledge gap regarding the role of schema in ASDTP across the continuum by recruiting both healthy participants and individuals said to be at ‘ultra-high risk’ (UHR) for psychosis, a state that confers high but not inevitable risk of development of a psychotic disorders in the near future (Yung et al., 1996). The use of UHR participants allows for a consideration of risk and resilience to psychotic disorders that would not be possible by solely studying patient samples.

The present study explored the role of schemata as a mediator between DT and psychotic symptoms to confirm such associations exist across the continuum. It also examined these links qualitatively, gaining insight from participant’s reflections upon how their experience of DT has shaped their beliefs about themselves and others, and how these beliefs relate to psychotic experiences. Given the existence of varied and unique
pathways between DT and psychosis, examining this qualitatively allowed us to explore how and why these links form, beyond simply stating that they do. Understanding this will allow for the appropriate targeting of psychological treatment.

The main research question is to assess whether and how ASDTP qualitatively relate their self and other schemata to DT and subclinical psychotic symptoms, which will be supported by quantitative analyses. For quantitative analysis, we sought to test the hypothesis that self-negative and other-negative schemata will mediate between DT and positive psychotic symptoms.

Methods

Overview

Adults (18-40) were invited via adverts on social media to take part in a study regarding the impacts of childhood adversity on the mind and brain. Part A refers to the completion of online questionnaires regarding DT (CTQ), psychotic symptoms (CAPE-42) and core schema (BCSS). Part B refers to taking part in structured interviews, which a subset of participants who had survived DT and were presently experiencing subclinical levels of psychosis were invited to. This explored in greater detail the psychotic symptoms and memories of the trauma, and the relationship of schemata to both, as well as a consideration of coping strategies. This study forms part of a larger project, IMPACT (Investigating the Mechanisms underlying Psychosis Associated with Childhood Trauma).

Design

Quantitative and qualitative approaches were used to address the research question cross-sectionally. In part A, we quantitatively looked to statistically verify relationships between DT, schemata, and subclinical psychotic symptoms across a large
sample. In part B, we qualitatively looked at the relationship of schemata to DT and psychotic symptoms within a subset of participants of clinical interest.

**Service User Consultation**

People on the research team have lived experienced of DT and psychotic experiences and contributed directly to the design of the study. External service users have been involved in designing this study through the UCL Division of Psychiatry Service User Forum (SURF). This was an iterative process whereby the study was presented at SURF meetings, with recommendations from the SURF for changes to the study being implemented, followed by re-presenting the study to the SURF for approval and further recommendations.

**Ethical Approval**

Ethical approval was granted via the UCL Research Committee (Ref: 17495/001; Appendix D).

**Participants**

Inclusion criteria for part A and part B:

- Adults aged 18-40
- Fluent in English.

Additional inclusion criteria for part B:

- Classified into the S+DT group (detailed below)

Exclusion criteria for part A and part B:

- Not fluent in English
• Currently receiving treatment for any serious medical condition (as interpreted by the participant)

• Past or present use of antipsychotic medication, antidepressant medication or mood stabiliser

• Past or present diagnosis of a psychiatric disorder.

Following completion of part A, participants were allocated into 4 groups: H+DT, H-DT, S+DT and S-DT. The cut-off for classification into the S (subclinical) group was a mean score of 1.47 or above on the CAPE-P15 (a UHR threshold identified by Bukenaite et al., 2017). A score below this would classify the participant into a H (healthy) group. The cut-off for classification into a +DT group was to score ‘moderate’ on the CTQ in at least 2 categories of trauma, or ‘severe’ in 1 category of trauma. The rationale behind these cut-offs was that scoring moderate in only 1 category would not be strict enough (i.e., lack specificity). Scoring at least moderate on 2 or more categories would constitute multiple traumatic experiences which we believe would constitute polytrauma and warrant assignment to +DT. Individuals scoring less than ‘low’ in all categories were allocated to -DT. This meant that individuals who scored ‘moderate’ in only 1 category on the CTQ were not allocated to any group.

Measures

Copies of all measures used can be found in Appendix E.

1. The Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998) is used to assess for experiences of trauma in childhood. Participants are asked to rate 28 items regarding if they have experienced types of trauma before the age of 17 on a 5-point Likert scale from “never true” to “very often true”. Scores can be split into 5
subscales: sexual abuse, emotional abuse, physical abuse, emotional neglect, and physical neglect.

2. The Community Assessment of Psychic Experiences (CAPE-42; Stefanis et al., 2002) is used to assess lifetime psychotic-like experiences (PLEs) in the general population. Participants are asked to rate 42 items regarding how often they experience varying PLEs on a 4-point Likert scale from “Never” to “Nearly always”. In this study, only 15 items regarding positive items from the CAPE-45 (known as the CAPE-P15) were used due to its robust factorial structure and internal consistency (Capra et al., 2013), which can reliably be further subdivided into subscales of persecutory ideation, bizarre experiences and perceptual abnormalities.

3. The Brief Core Schema Scale (BCSS; Fowler et al., 2006) is used to provide an assessment of schemata concerning the self and others in psychosis. Participants are asked to rate 24 items regarding whether they hold certain beliefs about themselves and other people, and if so how strongly they do, on a 4-point Likert scale from “Believe it slightly” to “Believe it totally”. Scores can be split into four subscales: self-negative, self-positive, other-negative, other-positive. This scale has been designed specifically for use in psychosis and is developed to relate to the schemata construct outlined in modern cognitive models.

4. The Family Affluence Scale (FAS; Currie et al., 1997) is used to assess for socio-economic status. Participants are asked to rate 4 questions regarding whether their family owns a car or computer, whether they have their own bedroom, and how many holidays they have taken in the last year. Scores can then be summed to give
an overall affluence rating of low, medium or high.

5. Demographics measure, to gather information on age, gender, and ethnicity. A COVID Impact question, asking "Over the last two weeks, I have felt stressed or burdened a lot because of the COVID-19 pandemic, compared to before the COVID-19 pandemic" on a 0-100 scale was also included to measure the impact of the COVID-19 pandemic.

The structured interview undertaken in part B comprised of two interviews. The first interview was a version of the Comprehensive Assessment of At-Risk Mental States (CAARMS; Yung et al., 2005), abridged for this study. The CAARMS is widely used to interview for ARMS criteria. In this study it was used to obtain qualitative descriptions of various psychotic symptoms, with sections 1.1, 1.2 and 1.3 broadly taken to refer to delusions, paranoia, and hallucinations respectively. The second interview (Patel et al., 2007) was designed to gain qualitative information on recent intrusive memories and images, asking for example: “In the last week have you had any particular memories from a particular episode or event in your past that keeps coming back into your mind?”. If more than two memories or two images were reported, participants were asked to identify the two most distressing intrusions. Memories were defined as a specific event with associated contextual information that was identified as occurring in the past. Images were defined as a specific mental picture or visual image relating to the past, present or future that did not meet criteria for memory. The participant is then asked to describe these intrusions, and to rate them on various 0-100 scales including distress, vividness, and impact on daily life.

Several questions relevant to the aims of this study were added to these two interviews. These questions focused on impacts to self and other schemata in relation to trauma experienced and psychotic symptoms disclosed (e.g. “Has your experience of
intrusive memories changed how you view yourself?”). Participants were also asked to reflect on how they believe the psychotic and intrusion symptoms may relate to each other (e.g. “You earlier mentioned [psychotic symptom] and [intrusion symptom], do any of these appear related to each other in terms of content/meaning/themes?”). See Appendix F for the full interview schedule, comprising of both interviews and the questions added for this study.

Procedure

The COVID-19 pandemic necessitated the study taking place entirely remotely, contrary to initial plans. For part A, the initial set of questionnaires were compiled onto an online platform, GORILLA. An ethically approved advert for the study was advertised on Facebook (see Appendix G for an example). The algorithm targeted London residents between the ages of 18-40 for the purposes of facilitating demographic matching to clinical samples recruited from London NHS trusts in future components of the study, as well as increasing the likelihood that participants can attend in-person testing for future components of the study.

Participants completed screening questionnaires to check for eligibility and consent forms on GORILLA. Participants therefore self-certified that they did not meet any exclusion criteria and had free choice to consent to and participate in the study at their own convenience. Completion of the questionnaires online was unpaid, with entry to a £50 prize draw as the main incentive.

A subset of participants in the S+DT group with the highest CTQ and CAPE-P15 scores were then directly contacted by the researcher via email to invite them to partake in the structured interviews for part B. If a participant responded to either the initial invite or a follow-up email sent 7 days later, they were sent the information sheet and consent form (Appendix H and Appendix I respectively) via email and offered the opportunity to discuss
and ask questions to the researcher by email, phone or video call. Once consented, a time for the interview to take place was agreed, which took place remotely online through a video conferencing platform. The interviews were audio recorded using a password protected and encrypted digital audio recording device. Participation in the interviews was paid at £10.75 an hour. Given the potentially sensitive nature of the interviews, the participant was spoken with to check their mood, current coping and ways of unwinding following the interview, and provided a debrief sheet which offered a list of potential sources of support (Appendix J). Participants were reminded at the beginning of the interview and before the questions regarding intrusive memories that they were free to not answer any questions and that they could withdraw at any time, with no impact to the monetary compensation for their participation. The time taken to complete the interviews varied from 1 hour to 3 hours. Given the length of time, participants were offered breaks and the option of completing the interviews at another time if they became fatigued, though no participant opted to do so.

11 of the interviews were conducted by the author (JR). A further 4 interviews analysed in this study were conducted by another researcher (AM).

**Analytic Procedure**

**Quantitative**

We underwent a power analysis to ascertain a minimum appropriate sample size. With power set at 0.8, alpha level at .05, and an anticipated effect size of .02 (Bloomfield et al., 2021), a sample size of 395 was given. Descriptive statistics were used to summarise data from the two of the three measures (CAPE-P15 and CTQ) across the four participant groups. As the BCSS does not have a singular summary score, it was not summarised in this way.
A mediation analysis to examine the role of self-negative and other-negative schemata in mediating the relationship between the CTQ and the CAPE-P15 across all participants was undertaken. See Figure 1 for the mediation model. The indirect effect was tested using a percentile bootstrap estimation approach with 10000 samples (Shrout & Bolger, 2002), implemented with the PROCESS macro Version 3 (Hayes, 2017).

![Mediation model](image)

Post-hoc analyses were also undertaken to tentatively investigate relationships within the S+DT group. This group was chosen for post-hoc analyses as we considered them to be the most clinically relevant. Also, in investigating the relationship between DT and psychotic symptoms, it is most informative to analyse the subgroup that has experience of both DT and psychotic symptoms. Correlation analyses were undertaken to uncover the strongest relationships between the subscales of the CTQ and the BCSS, and the BCSS and CAPE-P15. Given the substantial number of comparisons, Bonferroni corrections were applied to reduce the chances of a Type I error. Those subscales with the strongest and most statistically significant relationships following Bonferroni correction underwent a mediation analysis, as per the model of Figure 1.

Qualitative
The 11 interviews conducted by JR were transcribed by JR, and the 4 interviews conducted by AM were transcribed by AM. Transcriptions were later added to QSR International’s NVivo 2020 and analysed following a Framework Analysis approach (Ritchie & Spencer, 1994; Ritchie et al., 2003), a type of thematic analysis. Framework Analysis is not bound to a specific epistemological position, enabling it to fit pragmatically with the aims of the study (Ritchie & Spencer, 1994). It is more structured than thematic analysis with fewer inferences made during analysis (Pistrang & Barker, 2012), more suitably fitting the structured format of the interviews. This was also felt appropriate due to the more deductive approach of framework analysis fitting well with the theory-informed research question. This approach enables the development of coding framework which is derived from the research question and questions in the interview protocol. The large data set (15 interviews of up to 3 hours) also benefited from a more top-down approach to help organise the quantity of data. Framework Analysis enables the use of tables which can show the pattern of occurrence of each theme to allow for comparisons, which in the present study facilitated the identification of differences in the relationships of paranoia, delusions, and hallucinations to schemata. However, the final phase of the analysis permits researchers an interpretative role to generate an explanatory account of the phenomena and to generate to new theory (Ritchie et al., 2003).

The five stages of Framework Analysis are as follows:

1. Familiarisation – each transcript is read several times so the researcher becomes thoroughly familiarised with it.
2. Identification of a thematic framework – the researcher identifies salient excerpts of the transcripts using codes that label and categorise the content of each excerpt.
3. **Indexing** – the researchers discuss to agree on an initial set of codes to use. This initial set is applied and refined; this iterative process is repeated until no more new codes are generated.

4. **Charting** – after all the transcripts have been coded, it is summarised in a thematic matrix.

5. **Mapping and interpretation** – themes are generated from the data set by reviewing the matrix and are explored and discussed within the research team.

We adhered to guidelines for good practice in qualitative research (Mays & Pope, 2000). Saturation was considered reached at 15 interviews due to the extensive data set and participant’s evident ability to reflect on the relationships of interest. A consensus approach was taken to avoid relying upon a single researcher’s perspective (Barker & Pistrang, 2005). After a thorough familiarisation with the dataset, the coding framework was agreed upon by two researchers (JR and AM) who independently devised a coding framework that was informed by the existent literature, research questions and the content of the interviews. The researchers then came together and agreed on a framework to use, going on to pilot this framework on two interviews. The researchers then reconvened to agree a final framework, incorporating modifications that were thought appropriate following discussion.

A thematic table was constructed and used to identify prevalence of various themes (Table 3). Example quotes from the interviews are presented within the results section as evidence of the quality of the analysis.

**Disclosure of Researcher’s Perspective**

I am a male, mixed-race researcher completing this research as part of my clinical psychology doctorate in London, UK. I have long been interested in psychosis and have
worked both clinically and in research in this field. Having seen the devastating impact that a psychotic illness can have on the person and their family, I have become motivated to seek to improve treatment outcomes, both within my own clinical work and for the broader therapeutic community. My initial training in psychological therapy was in CBT, and I have observed the key role of schemata in maintaining distress. This likely contributed to my interest in examining schemata in this research. In research, I am particularly interested in translational and mechanistic research, and I am keen ensure that research has a measurable clinical impact.

I anticipated that the analysis would highlight that schemata were negatively impacted by DT, and that psychotic symptoms were in turn impacted by negative schemata. However, as a therapist I am interested in strengths-based approaches and this may have coloured my interpretations and made me more sensitive to examples than ran contrary to the discourse, or to examples of adaptive or healthy coping.

Results

Participant Characteristics

A total of 869 participants completed the online questionnaires remotely. A summary of relevant characteristics and scores on measures can be found in Table 1.

Table 1

Demographic information with means and standard deviations of the CAPE-P15, CTQ and COVID Impact scales across all participants

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Female %</th>
<th>Mean age (SD)</th>
<th>White British/ Irish % (SD)</th>
<th>FAS Mean (SD)</th>
<th>CAPE-P15 Mean (SD)</th>
<th>CTQ Mean (SD)</th>
<th>COVID Impact Mean (SD)</th>
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<tbody>
<tr>
<td></td>
<td>Total</td>
<td>H-DT</td>
<td>H+DT</td>
<td>S-DT</td>
<td>S+DT</td>
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<tr>
<td>N</td>
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<td>237</td>
<td>53</td>
<td>295</td>
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<tr>
<td>FAS</td>
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<td>65.1</td>
<td>70</td>
<td>54.7</td>
<td>67.5</td>
<td></td>
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<td>CTQ</td>
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<td>27.72</td>
<td>29.51</td>
<td>29.42</td>
<td>27.38</td>
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<tr>
<td>P15</td>
<td>65.7</td>
<td>63.6</td>
<td>67.1</td>
<td>62.2</td>
<td>69.5</td>
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<td>BCS-S</td>
<td>4.43</td>
<td>4.99</td>
<td>4.25</td>
<td>4.91</td>
<td>4.19</td>
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<tr>
<td>BCS-P15</td>
<td>22.93</td>
<td>18.6</td>
<td>19.42</td>
<td>25.66</td>
<td>28.27</td>
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<tr>
<td>CAPE</td>
<td>52.28</td>
<td>32.04</td>
<td>60.65</td>
<td>35.51</td>
<td>68.28</td>
<td></td>
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<td>COVID</td>
<td>48.05</td>
<td>43.74</td>
<td>44.46</td>
<td>50.4</td>
<td>52.92</td>
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<tr>
<td>95%CI</td>
<td>(19.75)</td>
<td>(30.38)</td>
<td>(14.98)</td>
<td>(34.77)</td>
<td>(32.79)</td>
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</table>

Note: *due to some participants not being allocated into any group, this is larger than the total of the 4 groups. FAS = Family Affluence Scale, CTQ = Childhood Trauma Questionnaire, CAPE-P15 = Community Assessment of Psychic Experiences - Positive 15-items Scale. COVID Impact is measured from 0-100. FAS score of 0-2 indicates low affluence, FAS score of 3-5 indicates middle affluence, FAS score of 6-9 indicates high affluence.

Mediation Analyses

To test the hypothesis that self-negative schemata will mediate between positive psychotic symptoms and childhood trauma, a regression analysis was undertaken. Total CTQ score was a significant predictor of BCSS self-negative total, $B = .13, SE = .01, 95\%CI[.11,.14], \beta = .43, p < .001$, and that BCSS self-negative total was a significant predictor of total CAPE-P15 score, $B = .39, SE = .03, 95\%CI[.33,.45], \beta = .41, p < .001$. These results support the mediational hypothesis. Total CTQ score was still a significant predictor of total CAPE-P15 score after controlling for the mediator BCSS self-negative total, $B = .07, SE = .01, 95\%CI[.05,.09], \beta = .01, p < .001$, consistent with partial mediation. Approximately 31% of the variance in total CAPE-P15 score was accounted for by the predictors ($R^2 = .31$). The indirect coefficient was significant, $B = .05, SE = .01, 95\%CI[.04,.06], \text{standardised } \beta =$
.17. CAPE-P15 scores were associated with CTQ scores that were approximately .05 points higher as mediated by BCSS self-negative.

We undertook a second regression analysis to test the hypothesis that other-negative schemata will mediate between positive psychotic symptoms and childhood trauma. Total CTQ score was a significant predictor of BCSS other-negative total, $B = .11$, SE $= .01$, 95%CI [.09,.13], $\beta = .39$, $p = <.001$, and that BCSS other-negative total was a significant predictor of total CAPE-P15 score, $B = .48$, SE $= .03$, 95%CI [.43,.54], $\beta = .49$, $p = <.001$. These results support the mediational hypothesis. Total CTQ score was still a significant predictor of total CAPE-P15 score after controlling for the mediator, BCSS other-negative total, $B = .06$, SE $= .01$, 95%CI [.05,.08], $\beta = .01$, $p = <.001$, consistent with partial mediation. Approximately 31% of the variance in total CAPE-P15 score was accounted for by the predictors ($R^2 = .31$). The indirect coefficient was significant, $B = .05$, SE $= .01$, 95%CI [.04,.07], standardised $\beta = .19$. CAPE-P15 scores were associated with CTQ scores that were approximately .05 points higher as mediated by BCSS other-negative.

Post-Hoc Analyses

Post-hoc correlation analyses were undertaken to investigate where the strongest relationships lie in the group of greatest clinical interest (S+DT), shown in Tables 2 and 3.

Table 2

<table>
<thead>
<tr>
<th></th>
<th>BCSS Self-negative</th>
<th>BCSS Self-positive</th>
<th>BCSS Other-negative</th>
<th>BCSS Other-positive</th>
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<tbody>
<tr>
<td>CTQ Total</td>
<td>Pearson</td>
<td>.179</td>
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<td>.227</td>
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<td></td>
<td>Sig. (2-tailed)</td>
<td>Pearson</td>
<td>Sig. (2-tailed)</td>
<td>Pearson</td>
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<td><strong>CTQ Emotional Abuse</strong></td>
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<td></td>
<td>.0020**</td>
<td>.174</td>
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<td>.001**</td>
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<td>.0007**</td>
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<td><strong>CTQ Physical Abuse</strong></td>
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<td><strong>CTQ Sexual Abuse</strong></td>
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**Note.** *p < .05. **p < .0021 (Bonferroni corrected for 24 comparisons).**
Table 3

Correlations of BCSS and CAPE-P15 subscales for the S+DT group

<table>
<thead>
<tr>
<th></th>
<th>CAPE-P15 Total</th>
<th>CAPE-P15 PI &lt;sup&gt;a&lt;/sup&gt;</th>
<th>CAPE-P15 BE &lt;sup&gt;b&lt;/sup&gt;</th>
<th>CAPE-P15 PA &lt;sup&gt;c&lt;/sup&gt;</th>
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<tr>
<td><strong>BCSS Self-negative</strong></td>
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<tr>
<td>Pearson</td>
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<td>Sig. (2-tailed)</td>
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<td>N</td>
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<td>Pearson</td>
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<td>Sig. (2-tailed)</td>
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<td><strong>BCSS Other-negative</strong></td>
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<td>Pearson</td>
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<td><strong>BCSS Other-positive</strong></td>
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The correlation analyses showed several significant correlations, even following conservative Bonferroni corrections. A final mediation analysis was conducted on the most highly correlated subscales: CTQ Total, BCSS other-negative and CAPE-P15 PI. Regression
analysis was used to investigate the hypothesis that BCSS other-negative mediates the effect of CTQ Total on CAPE-P15 persecutory ideation within S+DT only. Results indicated that CTQ Total was a significant predictor of BCSS other-negative, $B = .08$, SE = .02, 95%CI[.04,.12], $\beta = .23$, $p = .0001$, and that BCSS other-negative was a significant predictor of CAPE-P15 persecutory ideation, $B = .17$, SE = .02, 95%CI[.12,.21], $\beta = .39$, $p < .0001$. These results support the mediational hypothesis. CTQ Total was still a significant predictor of CAPE-P15 persecutory ideation after controlling for the mediator, BCSS other-negative, $B = .02$, SE = .01, 95%CI[.01,.04], $\beta = .01$, $p = .002$, consistent with partial mediation. Approximately 21% of the variance in CAPE-P15 persecutory ideation was accounted for by the predictors ($R^2 = .21$). The indirect coefficient was significant, $B = .01$, SE = .004, 95%CI[.01,.02], completely standardised $\beta = .09$. CAPE-P15 persecutory ideation scores were associated with CTQ Total scores that were approximately .09 points higher as mediated by BCSS other-negative.

Clinical Interviews

A total of 44 people from the S+DT group with the highest average CTQ and CAPE-P15 scores were invited to participate in the interviews. 3 people declined to participate. 26 people did not respond to two invitations via email. 15 people agreed to participate. Each was seen in a single video conferencing session (face-to-face was not possible due to the COVID-19 pandemic). A summary of relevant information for the participants who undertook the qualitative interviews can be found in Table 4.
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<th>Participant</th>
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Framework Analysis

Framework Analysis was completed on interviews from 15 participants. A summary of the themes and subthemes along with the frequency of each can be found in Table 5. An exploration of each of the themes will be presented, along with quotations from participants to illustrate each of the themes. Given the nature of the interviews (an answer-response structure with hundreds of questions), some quotes may appear somewhat decontextualised.
### Table 5

*Summary of themes, subthemes and frequencies resulting from the Framework Analysis*

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<tr>
<th>Family</th>
<th>Theme (Frequency)</th>
<th>Subtheme (Frequency)</th>
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Note: Theme frequencies are out of a maximum of 15. Total subtheme frequency may exceed 15 as participants could speak about multiple subthemes.
1. Impact of Developmental Trauma on Schemata

This theme relates to participant’s understanding of the relationship between trauma experienced in childhood and schemata that they currently hold. The most frequent associations were to self-negative and other-negative schema, with fewer associations to positive schema.

14 people reported having a traumatic memory from childhood that had come into their mind in the last week. 10 people reported emotional abuse (from family/authority figures: 2, parents: 6, peers: 5), 2 people reported emotional neglect (from parents: 2), 5 reported physical abuse (from family/authority figures: 1, parents: 4, peers: 1), 4 reported sexual abuse (from family/authority figures: 1, parents: 1, peers: 2), 3 reported exposure to violence and 4 reported non-violent exposure to death or illness.

1.1 – Self-Negative.

12 people interviewed reported that the trauma they experienced was linked to self-negative schema, leading them to hold a negative view of themselves.

7 people spoke of understanding their self-negative schema having developed from the internalisation of emotionally abusive messages they had received from others, as shown in the below quotes. People were generally quite able to make this connection when prompted to reflect; believing negative things about themselves was often seen as an inevitability given what they had experienced or been told.

“So I think it’s very obvious why I feel all of these negative things because it was always, like kind of drilled into me. And I was always kind of treated in a not nice way.”

[P10]
“I realise that people have said such so much crap to me my whole life being mean to me and just bullying me and making me feel like I am not valuable and I am worthless and after a while you just come to believe it and no matter what anyone says.”

5 people spoke about feelings of self-blame and guilt for what had happened having led them to develop a self-negative schema. Often, this appeared to be the result of attempts to make sense of the trauma they had experienced, leading them to blame themselves for it due to lack of any other logical alternative. Ideas of having “deserved” what happened to them or that they should have done more to prevent or stop it from happening were common.

“It makes me feel like I deserved it because I thought I remember this time I thought to myself this is happening all over again. Like obviously I've done something to deserve this, it wouldn't be just be two groups of people…”

“It's normally just self-deprecation, in that "I deserved it." You know, "It's gonna happen again, and I would deserve that, also."

6 people spoke about how their perceived lack of success in coping with trauma was linked to a self-negative schema. Themes of thinking that they should have coped better overall, or in a better way were prevalent, along with an inability to perceive of themselves as coping well currently. This was also associated with ideas that what had happened to them should be kept secret.

“It breaks me to say 'destroyed', but that's really the truth, I feel like that - that he has, it has destroyed my self-worth, you know. I, I've seen that because the only way that I feel
useful or happy... and it links with the fact that I've lost my job and stuff like that, is that I, I don't feel that I have any worth.”

[P3]

“But up until the age of about 25, I would have never admitted it, or told anyone, and been in complete denial of it, of any of it. And it does make you feel dirty. And corrupted. That's one way to describe it.”

[PS]

5 people spoke about continuing and pervasive feelings of powerlessness and vulnerability, often strongly and explicitly relating this to similar feelings in childhood. Frequently, the similarity in feelings of powerlessness then and now was perceived quite negatively and taken as evidence that they were not doing well and had not been able to “overcome” the trauma.

“Yes, makes me feel very powerless. It makes me feel like... basically how I felt in that moment, which is very like weak, like a child. When I know I'm not a child.”

[P13]

“In my head, I'm still a six-year-old, seven-year-old boy. I don't know - that could be misinterpreted in many different ways [laughs]. It's like I'm still as vulnerable. I feel as vulnerable.”

[PS]

In summary, the quality and type of people's self-negative appeared to have been impacted by childhood trauma. Broadly, this appears to have developed in terms of messages from abusers becoming internalised, and from attempts to make sense of these
experiences. This sense-making process often resulted in negative evaluations of the success of coping either then or now or evaluations of guilt and self-blame.

1.2 – Self-Positive.

3 people reflected on how the trauma they had experienced was at least partially related to their self-positive schema.

3 people spoke about how they have made active attempts to process the trauma and develop a sense of themselves as survivors; people that have experienced something exceedingly difficult, yet these experiences are only a part of who they are. Reflections were given on how they recognise how strong they must be to have survived that. This also linked to wishing to stand up for themselves and others when they see abuse.

“So, yeah, in terms of like, trying to, well, acknowledge it, but live with it and get better from it, kind of move on, and not let it define me and every single thing I do.”

1.3 – Other-Negative.

13 people reflected on how DT was related to an other-negative schema.

5 people linked their experiences of being mistreated by others in their childhood to their belief that other people are generally bad or dangerous. When encountering behaviour of others that is perceived as negative or challenging, this often directly reminds them of the trauma, either making them feel generally threatened, or activating a more specific concept that the other may be likely to re-enact the behaviour of abusers.

“If there's even one thing that they do that kind of remind me of her, I go like, “Oh I don't know if I can trust that person”, and it can be completely, you know something very random
or small or anything but. I think I create all sorts of scenarios in my head going... maybe that's going to just work out exactly the same as it happened to me all those years before.”

[Page 14]

“So I have a pretty strong distrust of other people that borders on almost a fear. I do get very fearful and anxious about say, going out and going out to a bar, going out for a drink. Yeah, I'm scared that one of these guys might grab a club and do what that guy did [laughs].”

[Page 11]

8 people spoke about understanding the conceptualisation they have of others as dangerous and untrustworthy as serving a protective function. Generally, assuming this of others was understood as wise and helpful; a “healthy scepticism”. There was a general sense that it is difficult or impossible to truly know people and their motives, and that it’s always possible to be surprised for the worst. Therefore, it makes sense to keep people at arm’s length and to not take them at face value until trust is genuinely earned.

“I couldn't trust anybody anymore after that. I even have a hard time trusting my own mother now, ’cause it's like I love people so much and it doesn't matter how much you love them and care about them, they can still betray you and lied to you and be dishonest, so I don't trust anybody anymore.”

[Page 15]

“It's made me a lot more suspicious of people. It takes me a lot longer to trust people than it did previously. I quite often will not, kind of, believe what people say. I'm very, sort of, naturally suspicious. I will go and like, research things. Perhaps if somebody said something to me, and someone else in the room would be like, "Well, you know, of course that's true", and I'm like, "Mmm, you sure?". I tend to be, sort of, curious about that sort of thing.”
6 people spoke about having a sense of others as critical and judgemental (as opposed to dangerous). This was concurrent with a fear of experiencing this judgement, and a lack of confidence in their ability to cope with it. This was often explicitly linked to bullying experiences at school and feelings of being ostracised or singled out.

“It makes me feel like people are very criticizy... and everyone sort of like is ganging up on me I suppose.”

“I remember the reactions of some people that I didn’t really expect at all. Yeah, I remember, during the funeral, all of the... all of the class went there. And remember, some of them were making jokes about it. And like they included me. And they were making sure that I heard them. And yeah... I remember that was really... like, I never really expected something like that. I didn’t expect that kind of that level of cruelty, I don’t know. Also from people, I had a different... opinion about when I - it didn’t... to me, it didn’t seem like they would do that. But they did. Yeah.”

In summary, DT appeared to have an impact on the other-negative schema of the participants. Others often become viewed through the lens of the trauma; if people experienced an abusive or dangerous childhood it appears that other people are viewed with suspicion that they may do the same. Similarly, if the trauma is more related to being picked on or bullied, then there is a general suspicion that others harbour this kind of intent.

1.4 – Other-Positive.

4 people spoke about their trauma as having some link to other-positive schema.
2 people reflected on having made active efforts to give others the “benefit of the doubt”; to not just assume that other people are bad or dangerous even if they had had bad experiences with others in their childhood. A seemingly conscious effort is made to not allow the trauma they experienced to colour their interactions with other people and to hold a balanced concept that sees people as potentially dangerous, but not necessarily so.

“Every person I meet, I give them a benefit of doubt, I'll give them as much trust and love as they need, up until they do me wrong. And then that’s it. I do give a lot of trust, personally, in the sense of, at the beginning, but even though I have those beliefs about people, it doesn't mean that I don't give everyone the benefit of the doubt or whatnot.”

[P1]

“I don't know if I taught myself or I learned it or it's just a general thing. But it's just, just because, you know, some people are bad, it doesn't mean that everyone is.”

[P10]

2 people spoke about feeling in some way that others are worthy of admiration; that their approval would be a good thing to gain. They spoke about holding a desire to be close with others and viewing them as good, worthwhile people. This was associated with a sense that, if there was any interpersonal difficulty with others, it would say more about them than the others.

“I am very like I find myself being very naïve, like because I think it's 'cause I was expecting always to find that kind of comfort and that kind of feeling from her, so if anyone I meet, they're nice and friendly to me, I kind of go all the way like nice and fluffy and stuff, lean towards them.”

[P14]
In summary, a minority of participants reflected on other-positive schema they hold, discussing conscious attempts to give other people trust, despite trauma, or a desire to gain approval from worthy others.

2. Impact of Schemata on Delusions

This theme relates to participant’s reflections on the relationship between schemata and unusual beliefs the participant holds. No participant made a link between unusual beliefs and a positive-other schema, with an even spread otherwise.

A total of 12 people were coded as holding some kind of unusual belief (guilt: 4, perplexity: 9, religious: 2, special skill: 6, thought broadcast: 5, thought insertion: 1, thought reading: 1).

2.1 – Self-Negative.

5 people spoke about their self-negative schema as having a relationship to or impact upon delusional beliefs.

3 people spoke about a self-negative schema that there is “something wrong” with them or that they are in some ways a broken or disgusting person as having a relationship to delusional beliefs. Primarily this was through fears that people will be able to detect or “find out” who they truly are via unusual means. This was strongly associated with feelings of shame about traumatic experiences, and a belief that people will think negatively of them if they find out about past abuse and how the participant feels about themselves.

“I thought people could read me and yeah... I don’t want people to know, so... so yeah, and I think it also goes a lot with - I think you have a name for that in English - the imposter...
syndrome. So people will figure out that [laughs]. And I’ve always had that. And that has made a lot of things very, very difficult to me. Especially when it comes to personal relationship with another man. Yeah, at some point he’s going to figure that my life is horrible, therefore unlovable et cetera, and then you just spiral down.”

[P3]

“I tend to hold the guilt kind of thing inwards, because I think it makes me sound like a complete mental person, and I don’t want people to know that about me.”

[P8]

2 people spoke about their belief of themselves as not good enough as having fed into delusional beliefs they hold. At times, a delusion was seen a way that their mind is trying to “remind” them of who they really are at their core.

“Like, my brain’s reminding me of, you know, how inadequate I am, or what I haven’t done, or you know, why I’m useless at x, y and z. So, by giving me a kind of reminder, it makes it more real, maybe? I don’t know.”

[P8]

In summary, people’s self-negative schema of being defective in some way appears to feed into fears that others will be able to detect this or what happened to them, or in some way serves to fuel unusual beliefs that they may hold.

2.2 – Self-Positive.

4 people spoke about an unusual belief being related to a self-positive schema. This schema was most strongly related to unusual beliefs in having an exceptional skill, which could be expected to link to self-positive schema around being special in some way. The
skill that people most frequently believed they held was being able to “read” or understand the motives and intentions of others, far beyond that of the average person.

“*I’ve always been kind, but now I’m like really like a real... I’m I think I’m the strongest empath I’ve ever been in my entire life honestly.*”

[15]

“It creates that distance where you are a spectator, so actually that’s the plus side, almost, of it, is that in a way, you know you’re accurate when you’re evaluating people: are they a danger to you, are they gonna attack you, whatever. It makes me pretty good at this. And prevention, as well. Like I could feel a danger coming up, for instance. Or, you know, bad intention or whatever.”

[3]

### 2.3 – Other-Negative.

4 people spoke about delusional beliefs as being related to their other-negative schema.

1 person spoke about this in terms of their special skill leading them to see others as inferior. This was strongly connected to the lack of support they received when younger and this lack of support was taken as evidence that people are generally unwilling to help.

“I’ve seen the adults, in order to play the game of the good family, they needed to agree that among themselves, by speaking or by not speaking by the way. So yeah it was very much like this sort of ballet of ”let’s pretend”. And I think I became very... I think I call it a skill or a gift, because it was a little bit my revenge of ”You’re just all fools”. Because, not because you’re not seeing stuff but because you don’t want to see. And I think that’s why I’ve always had a lot of anger as well. So, yeah, I think that’s kind of a power. You know, if
you were upset and you were good at something, obviously, it’s like God given [laughs]. It had to be like, a power.”

[P3]

3 people spoke about unusual beliefs linking to an other-negative schema of people being untrustworthy and dangerous and that it is beneficial to be on guard around others. Unusual beliefs are understood to seemingly serve as a warning system to keep danger at bay.

“I find it really hard to trust people. I don’t think I have been able to… start any, like, personal relationships that were sort of deep and lasting in any way you’ve made any friends or anything like that.”

[P4]

“And I’d be like, “Oh yeah, but why are you here?”. So it makes people feel like they’re trying to do something, and I sort of… caught them in the middle of it.”

[P13]

In summary, unusual beliefs tended to link quite idiosyncratically to other-negative schemata, but broadly this relationship was characterised by finding people untrustworthy or unworthy, and either believing the self is superior to, or in danger from, those others.

3. Impact of Schemata on Paranoia

This theme regards the relationship between currently held schemata and paranoia. Experiences of paranoia were slightly more commonly linked with self-negative rather than other-negative schema. There were no links made between paranoia and other-positive schema. In total, 12 people were coded as reporting paranoia.
3.1 – Self-Negative.

11 people spoke about paranoid experiences being related to a self-negative schema.

4 people spoke about a schema around being not good enough relating to paranoid beliefs through believing that others might target them in some way because they are (truly) not good enough. Attempts to understand the meaning of the paranoid feelings played a key role, often resulting in the interpretation that holding these concerns means that they are low in confidence or self-esteem.

“I think... when I think those feelings and what those kinds of situations make me feel like I think my self-esteem is quite low. my confidence is quite low.”

[P10]

“Oh yeah, absolutely makes me think of myself as like... either less of a person or just really anxious in general 'cause I’m thinking that something is wrong with me and need to change something about me so they’ll stop talking about me.”

[P12]

3 people spoke about the relationship between self-negative schemata and paranoia with more concrete and definitive fears that their defectiveness will be detected by others and they would be exposed as a fraud; this fear of exposure was motivating the paranoid feelings.

“I feel for most of my life, I’ve been growing up with these... I don’t know how... the secret, dirty secret that I don’t want anyone else to know. And I’m paranoid of them finding out or knowing... and that... it makes you feel bad.”

[PS5]
3 people spoke about paranoid thoughts leading them to feel very on-edge and that they must monitor themselves and how they are coming across. Pervasive and overwhelming feelings of self-consciousness and self-criticism were present, along with perfectionism and a belief that they needed to do better.

“Yeah, sometimes it makes me, it makes me sort of feel like I need to do better. Like I’m doing something wrong, but because I don’t know what I’m doing wrong, I sort of like go back and analyse every single thing that I did. Could it be this, could be this, could be this, what can I change to make it better? How can I do that when the next time I’ll be able to do that? What happens if they’re still not happy?”

“I think it’s just fair for me to not put too high expectations of myself. So, if I meet someone, then you know, I’m not going to be someone that they might think that I am, so might as well just lower their expectations.”

3 people spoke about a powerful desire to be liked by others. This relates to explicit references of needing to be liked, and how that links with paranoid feelings they experience. This subtheme was often predicated on memories of childhood experiences of not fitting in.

“...when I’m around others I want to be liked. And I want to feel like I’m an important person in their life or someone they care about. And someone that is liked, so... my feelings of anxiety tell me that that I am truly opposite of all those things. And, again, it’s just related to again, my childhood...”
In summary, the link between self-negative schemata and paranoia appears to relate to believing the self to be not good enough or defective in some way and should be doing better. This was concurrent with fears that this true self might be discovered by others with attempts to hide or conceal this from other people. It also relates to simply feeling on-edge around other people and needing to be vigilant to the (often negative and/or threatening) intentions of others.

3.2 – Self-Positive.

2 people spoke about paranoid experiences being linked to a self-positive schema.

1 person reflected on how their tendency to make paranoid interpretations of social events is linked to their schema that they are a skilled person in being able to understand the negative intentions of others.

“I think some form of that... I have felt every now and then, throughout my life. But I think since more-or-less the end of 2019, it's been more of a constant thing. Because I always kind of thought that I'm good at judging people and their nature.”

[P4]

1 person linked the negativity they perceive receiving in social situations as being taken “optimistically”; as criticism that they can use positively to improve themselves.

“I try to, like, take other people's criticisms into account - not to heart, just to try and be a better person, in general. So I try and take it a bit more optimistically.”

[P6]

3.3 – Other-Negative.
10 people spoke about their paranoid experiences being linked to an other-negative schema.

6 people reflected on an other-negative schema of others as dishonest and liable to put up a façade of sorts; that any kindness that they may exhibit is inauthentic and underlaid by ulterior motives. A belief in needing to be vigilant for people’s true intentions was understood as a way of protecting the self from being hurt and deceived.

“Like when people just start being kinder or trying to do things for me, ‘I'm like, OK, something is going on here’. And, they're trying to show me what it is without saying it. You know what I mean?”

[P12]

“If someone does something unexpectedly that is like was nice to me like...do they have like some sort of you know, intentions, why are they doing this? Like is that of the free will? Just 'cause they're nice... I tend to overthink a lot of things.”

[P14]

6 people spoke about a negative-other schema of others as people are dangerous or critical in a more intentional or purposeful way, such as by actively wishing them to fail. This was associated with a broad belief that other people are inauthentic and pretend to be something they are not, and that it is not acceptable for people to be so false.

“In the way that if I don't know them really well, I might want to be more cautious, because they might have an intention to harm me? Yes.”

[P7]
“Anything could happen and anyone could do anything and you do read about these kinds of things in the news so you just never know, and like I said I wouldn’t be able to defend myself if it did. So it’s just good to be careful and it makes me feel a bit safer.”

In summary, people understandably linked paranoid experiences and thoughts to other-negative schema, often centred around ideas of others as deceptive people who hide their true intentions. It therefore makes sense to be on-guard and second-guessing their motives. Some participants held a more concrete schema that others harbour specific intentions to harm, again providing a justification for not being trusting of others.

4. Impact of Schemata on Hallucinations

The relationship between hallucination symptoms and schemata are considered here together across perceptual modalities. The most frequent connections were to self-negative, followed by other-negative, with no participant linking to other-positive.

12 people were coded as having a hallucinatory experience or perceptual alteration (auditory: 11, visual: 6 olfactory: 4, gustatory: 3, touch: 4).

4.1 – Self-Negative.

7 people spoke about their hallucinatory experiences being linked to a self-negative schema.

6 people spoke about how experiencing hallucinations – understood as not being real – reinforces the self-negative schema that there is something wrong with them. This was justified through a belief that such experiences would not happen to “normal people”
and they therefore must be “crazy” or “broken” to be seeing or hearing things that are not really there.

“...like I just said the other morning, I said “Alright you nut case, go back to bed” [laughs]. Yeah, like it’s... clearly sleep, but sometimes I think I’m cracking up. I’m literally cracking up.”

[P15]

“I know, I know it’s not real. And it’s very disconcerting, very upsetting to know, it’s not real. The fact you know, that you’re hearing things and knowing that they’re not there.”

[PS5]

3 people spoke about a sense of the self as vulnerable and powerless as being connected to their hallucinatory experiences. These experiences act as reminders of their vulnerability, often by activating memories of traumatic experiences that had made them feel vulnerable, leading to a general identification with a position of subjugation relative to others. Themes of feeling stuck and having “no escape” were common, along with feeling unable to help themselves.

“Powerless. No escape, stuff like that. Really, really vulnerable, that’s stuck in my mind. You know, been locked in one place, and I’m not allowed to move. Like, I’ve got to face up to him, or something, and I can’t hide... there’s nowhere to go.”

[P2]

“I suppose it’s like, the kind of, the things that I haven’t achieved are kind of almost like lurking around. Like, that sort of in the shadow. It’s almost like it’s sort of taunting me, in a way. Not - again, not all the time, but sometimes that will be where my thought goes. It’s like, ”Oh, look, this, this person’s really successful, because they’re doing this, you’re not“, that sort of thing.”
In summary, hallucinatory experiences linked with self-negative schemata through concepts of defectiveness and brokenness, linking in turn to feelings of vulnerability and an inability to overcome the experiences and make themselves feel safe. Often, participants were able to make connections between the hallucinations and a past trauma, with thematic or content similarities.

4.2 – Self-Positive.

2 people spoke about their hallucinatory experiences as being linked to a self-positive schema.

1 person spoke about their self-concept of being a survivor. They hear their own voice reassuring their “child self” inside, and this is experienced as powerfully soothing. To them, this shows that they are a strong person who is now able to stand up and protect themself.

“That’s where I was, in many ways, what I realised a few years after that therapy was that I was constructing, that I had been constructing, a strong, strong woman, you know, that can take decisions and have to go through this... It’s giving the young [●] the love that she didn’t have, and it breaks me a little bit, yeah of course because it’s... yeah, it’s very moving. Yeah”

1 person spoke about a sense of acceptance; that having hallucinatory experiences does not mean that there is anything wrong with them.
“It’ll be undeniable that it does affect how you think because you can’t trust your senses. You can't, you know, you’re aware that this is not normal. But it’s, but it’s so normal to me that I think I am quite accepting of it in my own weird way.”

[P5]

4.3 – Other-Negative.

5 people linked their hallucinatory experiences to an other-negative schema.

2 people connected their other-negative schema of others being broadly dangerous and having bad intentions to a need to be hypervigilant for danger, and noted how this hypervigilance has in turn made them more sensitive to odd sensory experiences.

“I would definitely say that my hearing’s become more... I wouldn’t say physically sensitive, but I’m mentally more aware of what I’m listening to. Because, you know, for example, I’ve been living alone for a couple of years now. And so I’m always kind of listening out for things that may seem ominous, if that makes sense. Because if something was to happen in my building, I want to be able to respond to it as quickly as possible. So I guess it is kind of an underlying thing that’s always there that I’m always kind of just like listening out for, just in case.”

[P9]

3 people spoke about their hallucinatory experiences as reinforcing a belief that others might judge, target or ostracise them in some way. Considering the range of experiences across the cohort, this presented idiosyncratically, but generally the hallucinatory experiences served to bring certain worries or beliefs about others into conscious attention, which then went on to impact their interactions with others.
“That they’re gonna say the same things, and that I agree with... everyone else is gonna think of me as... don't know. I've been told by people that, I am... you know, a bad example, or a bad influence on people. I've had people remove themselves from my life, because they didn't want to know me, because I was talking to myself...”

“Yeah, I always - well, I'm better at it these days, but it always feels like people are out to try and get to me, like they take what they know is a weakness of mine and then to use that against me. Which I know is ridiculous, but it happens.”

In summary, the link between hallucinatory experiences and other-negative schemata appears to be through a schema of others being dangerous or untrustworthy leading them to be hypervigilant to danger and therefore vulnerable to noticing perceptual changes, or conversely through frightening sensory experiences activating their schema of others as dangerous.

5. Links – Content

8 people were able to identify a direct link between DT and present psychotic experiences. Prevalent themes centred around harbouring specific fears that others will do the same as what abusers had, or having hallucinatory experiences that were understood as “echoes” of past trauma.

“’Oh, like we know everything, you know that, you know that we know everything’. And this isn’t the first time they said that, like when I used to live with them, like they obviously said that like, ”We know everything, don’t think you can get away with anything”. So I think in terms of that, because of the anxiety I have from that, I think I always have this kind of thing
that people know what I'm doing or where I'm going, like they kind of know everything about me.”

“It was just like, yeah, I'm tense, my throat is tight, basically, but in reality, I think it's very much linked to that. The same as when I get a panic attack. It's not really that my throat is tight. It's that I feel someone is strangling me, it's different. I think it very much links to these images.”

6. Other Symptoms

Several other experiences within the psychotic spectrum were very prevalent in this cohort. Although we did not consider the relationship of these experiences to schemata, it felt worthwhile to comment on these as they were strikingly prevalent.

7 people spoke about having dissociative experiences, derealisation, or depersonalisation.

“... it's more like it... seems like my personality, my soul is just not there and it's just like this body, and so it's not partly, it's more or less the whole thing...”

“There is the time where I just don't feel my body, so it's like as if I was falling into space. And that can even happen even if I'm, awake, by the way, you know, where I'm just like, a floating thing. And that's the worst really. You don't feel anything and you feel everything at the same time. It's very threatening.”
13 people spoke about experiencing challenging levels of social anxiety or sensitivity to others in social situations, for example feeling on-edge or hypervigilant to negative social cues. This typically came with a recognition that such fears are likely to be “in [their] head”.

“... they get to do whatever they get to do, right? Go and see their friends, have a meal, whatever, and it’s in them times that you, that I personally would feel, “Oh my God, they’ve had so much fun”, and that’s where you kind of get “Oh, that’s time I could have had”, and it would have been nice to participate in that but you can’t, and that’s when it starts playing on the jealousy and stuff.”

[P1]

14 people spoke about experiencing difficulties with communicating with others, in terms of finding it hard to speak clearly, to get a clear message across or to feel understood by others.

“A lot of the time I kind of like stumble over my words, and I feel like I’m not saying things in the right way. Or like, maybe I’ve said something and it’s come across in a different way than I wanted it to.”

[P10]

“I’ve never really been that good at speaking. I find it hard to sort of gather my thoughts. And I lose my train of thought very often. And also... sometimes I know how to say something, but I still, like, stumbling my words and not say things the way I want to say them.”

[P4]
7. Coping

In terms of coping with challenging experiences of delusions, paranoia, or hallucinations, 10 people spoke about an ability to be able to rationalise these experiences and to not accept them as accurate or reflective of reality. Participants reflected on the use of logic and reality checking as strategies that helps to reduce distress and fixation.

“I can’t immediately dismiss it, I have to sort of sit with that thought for a little bit, and then go, "Right, okay, well you’ve sat with that now. But yeah, it’s not real, so let’s go and think about something else", that kind of thing.”

Discussion

The present study looked for associations between DT, schemata, and psychotic symptoms both quantitatively and qualitatively for the consideration of appropriate targeting of psychological treatment, utilising both healthy and UHR samples. As we predicted, self-negative and other-negative schemata partially mediated the relationship between DT and psychotic symptoms. This is in-line with other research, such as previous systematic reviews (Williams et al., 2018; Bloomfield et al., 2021) which found a mediating role for maladaptive schemata, alongside other factors.

Regarding the link between DT and schemata, our framework analysis showed a striking and overwhelmingly negative impact of DT on schemata. In one of the few qualitative papers regarding schematic beliefs in psychosis (Taylor et al., 2020), participants spontaneously related early experiences to self-negative and other-negative schemata. Other-negative beliefs were understood to be reinforced by ongoing difficult interpersonal relationships or bullying in adulthood. Similar themes were found in the present study, for
example with participants expecting the worst of people and acting in-line with that (e.g. with avoidance or suspicion). The findings lend support to past life experiences influencing presently held schemata, as well as how present-day events can reinforce these schemata.

Other-Negative Schemata

There were consistent and specific findings from the quantitative analysis regarding paranoia. The mediation relationship was particularly strong for other-negative schemata and paranoia in the S+DT group, with 21% of the variance in CAPE-P15 PI (paranoia) accounted for by the predictors. This relationship is supported by the framework analysis, in which the “impact of schemata on paranoia” theme had the highest number of associations. The finding of a particularly strong relationship between negative schemata and paranoia reinforces previous research (e.g. Fowler et al. 2006; Gracie et al., 2007).

The framework analysis revealed DT linked to the development of other-negative schemata characterised by a lack of trust in others and beliefs that others are dangerous and will harm them. Other-negative schemata in turn linked to experiences of paranoia characterised by worries that others are dishonest and have potentially harmful hidden motives in their interactions with them, potentially even wishing to re-enact specifically what they had experienced at the hands of abusers. Though there is limited qualitative research in the area, this broadly accords with Taylor et al. (2020) who noted that other-negative schemata appeared to have some overlap with paranoid beliefs, e.g. negative schemata about others being qualitatively similar to paranoid thoughts about the intentions of others; this was certainly reflected in the present study. The framework analysis also showed common ways of attempting to protect the self from this, often through avoidance and distancing from others, and a belief in the need to be vigilant to the
intentions of others – a sense that it’s better to be safe than sorry. See Figure 2 for an example formulation.

**Figure 2**

*Example formulation with other-negative schemata*

![Diagram showing the relationship between experiences of delusions (DT), other-negative schemata, psychotic interpretations/paranoia, and worries/fixations on motives/intentions of others.]

**Self-Negative Schemata**

There was also a strong link between paranoia and self-negative schemata, triangulated through quantitative and qualitative methods. The framework analysis showed that DT frequently led to the development of a self-negative schema around being worthless and broken. This accords with research from cognitive models of psychosis from ultra-high risk for psychosis (UHR) samples (Appiah-Kusi et al., 2017). This was understood by many participants as an internalisation of abusive messages. These schemata in turn related to paranoia through fears that others will find this out or expose them, despite their
best effort to conceal this. Research has shown that self-negative schemata are characteristic of psychosis and factors such as low self-esteem and worry represent both risk factors for developing psychosis and maintenance factors (Krabbendam et al., 2002; Krabbendam & van Os, 2005). See Figure 3 for an example formulation.

**Figure 3**

*Example formulation with self-negative schemata*

Various systematic reviews have also supported the relationship between self-negative schemata and paranoia (Kesting & Lincoln, 2013; Tiernan et al., 2014). In terms of at-risk patients, Hesse et al. (2015) showed that a negative interpersonal self-concept indicates an increased risk for paranoid delusion over the course of a year.

An alternate (but not mutually exclusive) self-negative schema based around a belief that the self is weak and vulnerable for having experienced DT and/or having not
fought back was also evident. Schemata regarding vulnerability have been linked to a predisposition to psychosis in the literature (e.g. Kraan et al., 2017).

All three categories of psychotic symptoms considered in the present study evidenced a high prevalence of a self-negative schemata related to defectiveness - “something wrong with me”. In addition to paranoia discussed above, for hallucinations this relationship was strongly characterised by shame, with hallucinatory experiences being perceived to fall outside of what “normal” people would experience. Recent research has indicated the role of shame highly relevant, with Bortolon and Raffard (2019) finding a mediating role of shame to hallucinations. Fielding-Smith et al. (2015) have suggested that interventions specifically targeting self-schema may be sufficient to reduce distress in the context of AVH.

Self-negative schemata around vulnerability appear to be self-reinforcing in nature. The framework analysis revealed that psychotic experiences can function as reminders of vulnerability, often by triggering memories of traumatic experiences that had made them feel vulnerable. This activates their other-negative schemata of others being dangerous and having bad intentions, leading to a belief in the need to be hypervigilant for danger. The framework analysis highlighted that this hypervigilance in turn sensitises them to odd sensory experiences due to the tendency to be listening or looking out for things. This is in-line with research, with Fowler et al. (2006) arguing that individuals actively look for information to reinforce their core schemata. Taylor et al. (2020) noted that schemata and psychotic symptoms tended to synergise, for example with self-negative schemata being reflected in AVH content. Psychotic symptoms themselves also reinforced self-negative schemata, with them leading the person to feel that success would be more difficult to achieve. This was very much reflected in the current study – “something wrong with me” was a prevalent subtheme across all three symptom types. Finally, Stowkowy et al. (2016)
found that CHR participants evidenced more maladaptive schemas over time as compared to controls, with those who transitioned to psychosis holding more maladaptive self-negative schemas at the time of transition. See Figure 4 for an example formulation.

**Figure 4**

*Example formulation of self-reinforcing self-negative schemata*

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**Other Findings**

Self-negative (I am weak and vulnerable) and other-negative (others are hostile and devious) schemata co-occurring represents an exceedingly difficult and vulnerable interpersonal position. It may be this conjunction of danger and vulnerability in a social context that is typical of people with psychosis (Barrowclough, 2003) and is linked to extreme emotional and psychotic reactions, such as paranoia (Garety et al., 2001).
In the framework analysis, there was little evidence of a relationship between psychotic symptoms and self-positive or other-positive schemata, with no instances of other-positive schemata linking to delusions, paranoia, or hallucinations. There were some instances of self-positive schemata linking especially to delusions, but this was directly related to grandiose-type beliefs in having a special skill or ability and so is not likely to represent a potentially protective factor against psychotic symptoms.

Of note were the high numbers of people that were able to make connections between psychotic phenomena and DT, with 9/15 people able to do so. This link is highly relevant to the field of TFPT in psychosis. At 60%, this proportion is higher than previous research would suggest (e.g. 45% - Hardy, 2005; 39% - McCarthy-Jones et al., 2014). This may be due to the present, subclinical population having greater insight and being more able to make connections in ways that are difficult for those with a psychotic disorder. Alternatively, differences in methodology may explain this, as in the current study people are being asked multiple specific questions to explore this in a more exhaustive way.

Also of note is the high numbers of participants within the S+DT group (34% of the total). Research on subclinical symptoms in the general population is in its infancy with no agreed objective criteria for thresholds. Our threshold was based on previous research, with an associated positive predictive value of 66% for frequency and 69% for distress (Bukenaite et al., 2017). Whilst this indicates there could be a number of false positives, this rate compares favourably with that of other commonly-used tools in mental health, such as 31-51% for the PHQ-9 (Kroenke et al., 2001) and 44.6% for the GAD-7 (Rutter & Brown, 2017). Additionally, other research utilising community samples have found high rates, such as an average of 2.99 psychotic-like experiences (PLE) endorsed, with 19.1% endorsing 6 or more (Mongan et al., 2017), 95.7% reporting more than one episode of PLE (Sun et al., 2015) and 51.4% of the participants reporting at least one positive PLE ‘nearly-always’
(Fekih-Romdhane et al., 2020). Certainly, initial recruitment focused on the group of interest through the nature of adverts (e.g. “Do you often feel that people are out to get you?”), and there is ongoing active recruitment for healthy participants for future parts of the study. High numbers may also be partially explained by high levels of motivation; many participants in the qualitative interviews reflected that they felt the research was important, valuable and long overdue. Finally, the finding of few participants in the S-DT group (i.e., subclinical symptoms without developmental trauma) has been replicated in the Korean arm of the study (unpublished data), and potentially speaks to the prevalence of the relationship between developmental trauma and psychotic symptoms.

In sum, we have triangulated data from quantitative and qualitative sources to find that negative schemata, especially other-negative, are most strongly and uniquely associated with paranoia, and that this impact can be recognised and reflected upon within this subclinical sample. A potential cognitive pathway between DT and later psychosis could be partially dependent on maladaptive schema (reinforced by hypervigilance and appraisal biases), likely to contribute to risk of psychosis in tandem with DT. Research has indicated that DT may contribute to psychosis risk in an additive way with it not being sufficient in and of itself (Luhrmann et al., 2019; Piotrowski et al., 2020). The present findings additionally encourage the use of psychological interventions that may target negative schemata.

**Clinical Implications**

Given reliable links between DT and trauma, there is an evident need for clinicians to assess for experiences of trauma in people with psychotic symptoms. This should include a consideration of bullying, which research has shown plays a key role (e.g. Catone et al. 2015) and was prevalent in the current sample. Although assessing people with psychosis
for PTSD is recommended in the latest NICE guidelines (National Institute for Health and Clinical Excellence; 2014), a recent review showed that many people with psychosis are not (Read et al., 2018).

Schematic beliefs about the self and others should also be assessed for and incorporated into formulations and treatments. Given our findings that DT is linked to psychotic symptoms, partially mediated through self-negative and other-negative schemata, this suggests that intervening to modify schemata may alter trauma-related memories that they construct – present beliefs have an inexorable impact upon how the past is remembered. Other researchers have called for a great focus on schemata. For example, Scott et al., (2020) have suggested that targeting schemata in psychological treatment will likely have an impact on auditory hallucination content. CBTp, a widely used psychological approach, sometimes incorporates modification of maladaptive schemata through techniques such as cognitive restructuring but this is not often a focus, with one prolific CBTp manual recommending caution in doing so and recommending to focus primarily on the maintenance level of cognition (Morrison et al., 2004). Meta-analyses have shown relatively small effect sizes and mixed results for CBTp compared to other interventions (van der Gaag, et al., 2014; Mehl et al., 2015). However, Mehl et al. (2015) found some evidence to suggest that approaches focusing on cognitive or emotional factors involved in the formation of persecutory delusions (including self-negative schemata) may be more effective. The present results suggest that a greater focus on schemata in CBTp could be an effective way of improving treatment outcomes.

An alternate approach with an explicit focus would be schema therapy (Young et al., 2006). Some of the most salient potential treatment targets, taken from themes from the framework analysis, include shifting from maladaptive schemata of the self being broken or faulty to learning they are acceptable, and their experiences are normal. This could be powerful in moving away from psychotic interpretations (Broome et al., 2005;
Lavallé et al., 2020). Similarly, is it clear to see how developing a more balanced schemata of others being indeed potentially dangerous but also potentially good and helpful would lead to fewer psychotic, especially paranoid, interpretations of ambiguous social interactions. In the current sample, this schema was also linked to maintenance factors such as hypervigilance, which could also be ameliorated by a shift in schema. The low prevalence of self-positive schemata in the qualitative analysis also represent a potential target for schema therapy. It remains unlikely that schema therapy will represent a ‘silver bullet’, however current evidence and the results of the current study indicate schemata play a significant role that is currently being under-considered. To the best of the authors’ knowledge, there is currently no published research using schema therapy in a psychotic population.

Another potential approach may be to enhance self-compassion to lessen the impact of negative schemata, as in compassion-focused therapy (CFT), with Heriot-Maitland et al. (2019) outlining a CFT approach for voices. Bortolon and Raffard (2019) also suggested the use of CFT to counter the high prevalence of shame, which would then consequently impact upon psychotic experiences. This approach may also particularly suit those in the present study whose self-negative schemata relate to a lack of belief in their own coping well and could consider ideas such as post-traumatic growth.

**Research Recommendations**

Evidence consistently shows the key role of schemata in the genesis and maintenance of psychotic symptoms. However, there has been no study to-date investigating psychologically targeting this in this population. Primarily, more intervention research is needed, utilising schemata-focused therapies such as schema therapy in people
with psychosis, investigating if schema change reduces psychotic symptoms, alongside other psychopathology given high rates of comorbidity (Wigman et al., 2012).

Future research investigating the role of schemata in the relationship between DT and psychotic symptoms would benefit from taking a longitudinal approach to tease out causal relationships.

Schemata are relevant in the growing area of research considering the relationship between psychosis and PTSD. Researchers have commented upon several shared underlying mechanisms between PTSD and psychosis, one of these being negative schemata (e.g. Kevan et al., 2007). Of note, the present study found 9/15 (60%) people were able to make direct links between psychotic symptoms and DT. The seminal work of Hardy et al. (2005) distinguished between two kinds of connections between DT and psychotic symptoms, direct content link (at 12.5%) and emotional or thematic link (45%). In many ways, schemata as a mediator essentially represent these thematic links and so could be considered as such in future research. Corstens and Longden (2013) showed that the underlying emotional conflicts shown through auditory hallucinations – such as low self-esteem or shame – was able to be formulated in 94% of cases, a clear schematic link. The findings of the present study indicate that schemata should be more greatly considered in PTSD/psychosis research.

Another interesting consideration for future research in relation to schemata and psychotic symptoms is around intrusions about future events. Research most frequently considers the impact of intrusions and memories of past events, but the literature is beginning to suggest that intrusions about imagined future events are relevant in psychotic disorders (see e.g. Malcolm et al., 2015). Schemata are likely to have an impact on these imagined future events, with the meaning of memories impacted by schemata and beliefs (Hardy, 2017).
Research investigating whether schema-focused therapies can prevent conversion to psychotic disorder in CHR people could also be useful, given findings that those who transitioned to psychosis held more maladaptive schemas at the time of conversion (Stowkowy et al., 2016).

As many participants included in this study were experiencing subclinical symptoms of psychosis, we could expect there to be differences in the type and quality of symptoms experienced to clinical samples diagnosed with a psychotic disorder. According to van Os et al. (2008), subclinical psychotic symptoms are less-so distinguishable by the aspects of the experiences themselves, and more-so by the severity, frequency, and conviction of them. This was very much reflected in the present study, with participants evidencing a general ability to see certain psychotic phenomena as not real, shown by the high numbers of participants able to rationalise odd or strange experiences. This may suggest insight could play a protective role. This, however, did appear in turn to have negative impacts on self-schema (e.g., “If this is not real, there must be something wrong with me”). We may expect to see different impacts if people have higher conviction in their experiences (e.g., “Why are they doing this to me?”). Findings such as these highlight the utility of examining the continuum to identify possible resilience factors.

Finally, whilst the present research built upon previous research considering strong relationships between paranoia and negative schemata, and developed specific hypotheses in-line with this resulting in a specific research design, we did choose to omit the consideration of negative symptoms of psychosis. This is of note, as psychosis is comprised of multiple symptom domains. Existing research indicates that DT leads to a vulnerability to develop negative symptoms (Vinkers et al., 2013), and that beliefs about the self are related to change in negative symptoms (Palmier-Claus et al., 2011). This indicates that future
research may benefit from also considering negative symptoms of psychosis, which remains under researched as compared to positive symptoms.

**Strengths**

The present study had a high sample size for the quantitative analyses. A large amount of qualitative data was also gained through 15 interviews with lengths of up to 3 hours.

Qualitative explorations of schematic beliefs in psychosis are lacking in the literature, and this is the first study to qualitatively look at the relationship between DT, schemata, and specific psychotic symptoms in a community sample. Doing so represents an opportunity to reveal new insights from the patient’s perspective. This is of particular importance when considering how psychological therapies could play a role and allows a consideration of how to provide care in a schema-informed way. The use of framework analysis also represents a strength, as it enabled the use of a theory-driven, deductive approach to qualitative analysis, which is beneficial given the wealth of established quantitative evidence in this area.

The use of BCSS over other measures is beneficial as it is specifically designed for use in psychosis (Fowler et al., 2006). Its four-dimensional structure is also coherent with the four attachment styles of Bartholomew and Horowitz (1991), enabling future work utilising the BCSS to potentially link to attachment theory. The other measures used (CTQ and CAPE-P15) are also highly recognised, ensuring high levels of reliability and validity.

**Limitations**
A limitation of this study is its cross-sectional nature. It consequently lacks the ability to infer causation. More prospective research is therefore needed.

As previous research has indicated (e.g. Bentall et al., 2014), unique and varied causal pathways exist between DT and psychosis. It is likely that the nature of DT experienced is relevant. However, the present study did not examine this qualitatively. Future research would benefit from taking this into consideration, though a larger sample size may be needed to do so.

The research was impacted by the COVID-19 pandemic, meaning that initial plans to run the interviews face-to-face had to be transferred online. Face-to-face research is seen as the gold standard (Deakin & Wakfield, 2014) and conducting the interviews online may have impacted upon rapport and participant’s comfort in sharing personal information (Bertrand & Bourdeau, 2010). Furthermore, there was a direct impact of the COVID-19 pandemic on the participants themselves, with participants in the S+DT group scoring a mean of 52.92 on the COVID impact scale, and four participants in the interviews scoring the maximum of 100. For some questions, participants reflected on the difficulties of separating their experiences from living through a pandemic (e.g. being alone more often recently due to lockdown).

Ideally, credibility checks are undertaken in qualitative research to promote testimonial validity (Barker & Pistrang, 2005). However, we decided not to undertake this in the present study due to the potential for it to pathologise participants who may not have viewed certain experiences as, for example, ‘delusional’, as they have presently been coded. We also did not undertake a bracketing interview, considered to mitigate the influence of the researchers’ assumptions and experiences on the research (Tufford & Newman, 2012). Whilst the qualitative component to the research mostly utilised interviews that were validated clinical measures or taken from previous research,
undertaking a bracketing interview would have been of benefit to the research. Nevertheless, other attempts were made to adhere to appropriate guidelines (Mays & Pope, 2000) and improve the validity of the conclusions by ensuring, for example, independent researchers’ agreement on the coding framework.

A further limitation is the lack of data quality controls within the GORILLA platform, beyond simply not allowing participants to submit blank responses. Due to the lengthy nature of the questionnaires and fatigue, it is certainly possible that some participants did not answer questions accurately and instead chose to quickly click through. Future research should implement data quality checks to ensure poor-quality data are identified and not included.

A final potential limitation of the study lies in that some participants may have broken inclusion criteria, which stated participants should have no past or present diagnosis of a psychiatric disorder, and no past or present use of psychotropic medication. However, it became apparent in the qualitative interviews that a minority of participants did not fully meet inclusion criteria. As their quantitative data had already been included at this point, we decided to also include their qualitative data. Though this may represent a violation of the inclusion criteria, it may not represent an impact on the validity of the study or its conclusions. Research has shown that most individuals with psychotic experiences have a current diagnosis of mood or anxiety disorder (e.g. Wigman et al., 2012), and people with non-psychotic mental disorders have elevated means on measures of psychosis as compared to non-patients (Hansen et al., 2003), with some research (e.g van Rossum et al., 2011), indicating a causal relationship between subclinical psychotic symptoms and mood disturbance (including anxiety and depression). This means that our community-based sample is likely to be more reflective of the general population.
Conclusions

We found converging evidence from quantitative and qualitative sources on the role of schemata. Quantitatively, negative schemata were shown to partially mediate the relationship between DT and psychotic symptoms, most strongly for other-negative schemata and paranoia in the S+DT group, with the significance and directionality of post-hoc correlations providing consistent and specific support of this. Qualitatively, it was clear that schemata were shaped by early traumatic experiences which then go on to colour later interpretation of events, potentially leading to psychotic symptoms. More specifically, the most prevalent themes centred around DT leading to development of an other-negative schemata that others have hidden, dangerous motives leading to paranoid interpretations, and how DT has led to a self-negative schemata of being worthless through internalising messages, leading to paranoia that others will expose this about them. In sum, a cognitive pathway between DT and later psychosis appears to be partially dependent on negative schemata, contributing to risk of psychosis in tandem with DT.

In addition, through the interviews, the role of schemata was relatively easily identified and reflected on by the participants. From a clinician’s perspective, the findings of this study support cognitive theories of psychopathology and suggest that schemata could be a target of psychological intervention in patients with psychotic symptoms. Further research is therefore needed to investigate schema-focused cognitive therapies for this population.
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Part 3: Critical Appraisal
I am a male, gay, mixed-race researcher completing this research as part of my clinical psychology doctorate in London, UK. In this critical appraisal, I will discuss how my background and interests contributed to the research, challenges I have faced and lessons I have learnt on the way as I undertook my research, a reflection on some of the limitations and strengths of my research, and finish with a consideration of future research that could follow on from this research.

**My Interests and Representativeness**

My status as a part of several minority groups may have played a role in my interest in mental health, research, and making a difference to others. I have likely also been drawn to the topic of childhood adversity given experiences of discrimination and rejection in my youth, as many of a minority status can likely attest.

It is important for me for research to be representative and not ‘WEIRD’ (Western, educated, industrialized, rich and democratic) when most people in the world are not (Henrich et al., 2010) to enable conclusions to be valid beyond the typically represented cohort of white and educated. As a junior researcher based in the UK, it was difficult to recruit people that were not ‘WEIRD’. Nevertheless, I was pleased that, for part A of the study, the participants were racially diverse, with around 40% non-white participants. However, for part B of the study, this was not the case. The participants for part B were not selected in a way to ensure representativeness but were instead selected by who had the highest scores in two measures of interest. Several explanations could be applied to explain the lack of racial diversity for the participants in part B. For example, it could be that white people who had experienced higher levels of abuse and psychosis were more likely than their minority counterparts to have access to a laptop and time to take part.
Data about sexuality was not gathered. As my study was part of a larger study, I had only a contributing impact into what questions would be asked and which measures would be added. In the future, I would like to see questions regarding sexuality and gender identity included as a matter of course, just as questions about race, gender and socio-economic status typically are. I do not believe that sexuality should be seen as a ‘taboo’ subject to be avoided unless the research is specifically about sexuality, for this only contributes to stigma and discrimination in a self-reinforcing way. There are many potential inequalities and interesting findings that are being missed due to this data not being gathered.

I have had a long interest in psychosis and have had previous experience working both clinically and in research in psychosis, as well as having personal experience. Through individual and family work as well through my own life, I have seen the wide-reaching impact that psychosis can have. I believe the first and most crucial step in working with a psychotic population is simply good-quality engagement and building trust. I attempted to invoke a good rapport with participants even from my first email or call, setting an appropriate and friendly tone and ensuring they knew the choice to participate or not was solely theirs. I attempted to apply the community psychology principles of Barker and Pistrang (2005) to this study, especially those of giving a voice to under-represented populations. Participants reflected that they were very happy to take part as they thought the topic was highly important, yet they had not been given opportunities to speak about their experiences of trauma in the past.

As a clinician and an individual, I am motivated to improve treatment outcomes. Research that motivates me needs to have direct clinical impact. As such, I am interested in translational and mechanistic research, directed towards informing treatment targets for psychological interventions. The present study investigated schema as a mechanism
between developmental trauma (DT) and psychotic symptoms, to inform psychological interventions targeting schema, which I believe is a good fit for me and my interests.

**Challenges in New Ways of Working**

Throughout my research, I faced a number of challenges which were potentially frustrating at the time. However, as a junior researcher, in many cases these were formative experiences which were greatly useful in helping me to learn and grow.

As I am primarily a clinician with relatively limited research experience, one difficulty I faced was in conducting my research was in the transition in role from clinician to researcher. Given the sensitive nature of the interviews (regarding trauma and abuse experienced in childhood), it was at times personally challenging. It felt difficult, given my training and how I would naturally respond to a client clinically, to simply thank them for sharing such personal and painful stories and move on. At times, I worried if this might leave the participant feeling unsupported. Questions related to self-harm and suicide also felt challenging, as there was not a clinical team to support me or established care pathways to follow if risk was disclosed.

I had not previously experienced work as part of a larger research group with others who had their own projects and goals. I enjoyed working with a group of other researchers, as it gave me opportunities to collaborate, brainstorm ideas and work together to solve certain problems. The group was helpful in many ways, such as setting up some parts of the study and with recruitment, and I returned the support in kind by supporting them with challenges they were facing, and by collecting data not relevant to my thesis. I also learnt some management skills as newer researchers came into the group who needed support from me to learn about the study, methods, and ongoing thought processes.
However, unfortunately, there were a few problems that arose as a result of working as part of a research group. For example, one third of the clinical interviews I conducted had to be discarded due to an error of another researcher. In addition, at times my project felt quite unwieldy and I personally wanted to cut out parts of the clinical interviews that I had realised through conducting them were not providing fruitful information – but it was not easy to get a consensus with the other researchers on which parts every person would be happy to be cut.

**Challenges in Conducting the Interviews**

As previously indicated, the interview schedules themselves were challenging to use for qualitative analysis. As the interview in total comprised of two formal clinical interviews and some additional questions I had added, it was in highly structured format with hundreds of questions in total to go through. This meant that many of the answers from participants were relatively short, which were difficult at times to use for qualitative analysis. The length of the interviews (up to 3 hours in time) was also likely to induce fatigue, especially when approaching the end of the interviews where the questions that required the most thought and reflection took place (i.e., considering various kinds of connections between trauma, schema and psychotic symptoms). Fatigue from both researcher and participant likely played a role in the depth and quality of these reflections, and it is likely that at least some valuable information was missed.

There were also difficulties in using clinical interviews with this population outside of a mental health context. Many of the questions were somewhat ambiguous (e.g. “Do you feel puzzled by anything?”) in ways that often prompted lengthy answers that were essentially not relevant to the study. Given my belief in the need to establish a good rapport given that there are potentially challenging questions later about experiences of
childhood trauma and abuse, it was difficult at points to balance this with the need to keep good time and reduce the transcription burden. Next time, I would try to streamline the interviews to be more specific to the aims of the study, and ensure the structure was less rigid to enable more freedom to go ‘off-track’ and explore interesting points relevant to the aims of the study.

Furthermore, greater reliability training and agreement between researchers would have been beneficial. At the end of the interview, the researcher is required to (without any real time for reflection or consideration) condense and summarise many disparate things into three categories: “delusion”, “paranoia” and “hallucinations”. These groupings were subjectively put together by the researcher and did not arise naturally from the participant. It was often hard to do so, especially considering the subclinical nature of the group rendering it difficult to confidently define an experience as a psychotic symptom or not. There was a lot to hold in mind (comparing three categories of symptoms, six schema types and six PTSD intrusions individually in each possible way) that certainly meant important connections would have been missed. Again, this taking place at the end of a 3-hour interview made this cognitively fatiguing.

In future, potentially splitting the interview into two sections to give the researcher time to consider these categorisations and relationships more holistically and to give the opportunity to discuss this with other researchers or have an established framework to do so could be useful to increase the quality of the study.

**Challenges in Data Analysis**

As a researcher with limited experience in qualitative methods who also had a supervisor with limited qualitative experience, coding the interviews presented a set of unique challenges. As previously mentioned, decisions about whether a symptom qualified
as “psychotic” or not was often subjective. In particular, there were questions around whether something qualified as ‘paranoia’ or whether it could be better conceptualised as social anxiety. Particularly relevant was the participant’s insight and ability to rationalise their experiences; recognising that they might be not real. The role of interpretations of a given symptom plays a key role in deciding whether something is psychotic or not (Morrison et al., 2004). Indeed, it was noticeable that certain participants who scored higher on measures of psychotic symptoms did appear to have less insight and more distress about their experiences, which could speak to source monitoring errors (Steel et al., 2005) or cognitive deficits (Bora & Murray, 2015).

There were no easy answers to these questions regarding how to code or categorise certain experiences, and it is likely other researchers could have coded it differently. To counter the risk of bias, another researcher and I agreed on a framework and conducted reliability checks. According to relevant guidelines, it is important and valuable for qualitative research to take this consensus approach (Barker & Pistrang, 2005).

Through iterating the coding framework, we decided not to code any traumatic experiences from adulthood, or for childhood experiences that had passed. We decided to add references to who was the cause of the trauma (e.g. peers at school or parents), and type of trauma informed by the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998), in addition to others that arose and seemed relevant (e.g. bullying). Our decisions around which types of coping to code were informed by the PTSD literature.

When agreeing the framework and checking concordance, differences between the other researchers and I were apparent in many ways, such as when considering coping techniques. As a clinician, I looked at this differently to my colleague as I was informed by my training and understandings of what, for example, constitutes avoidance, such as a consideration of both cognitive and emotional avoidance. Another example was in thought
suppression, which I had considered to include attempts to replace negative thoughts with positive memories, instead of just suppressing negative ones. In relation to coping through attempts to distract, it was hard to objectively say whether this was helpful or unhelpful coping. As a therapist, I am aware that this depends very much on the context, but unfortunately there was not the space to explore this further in the interviews.

COVID

Partially due to COVID, the initially approved focus of the study changed – from looking at similarities between PTSD intrusions and psychotic symptoms, to considering schema as a mediator between DT and psychotic symptoms. Whilst both were of interest, it was frustrating that much of the preparatory work I had done was mostly going to waste. Questions I had designed for the interview schedule were more in line with the former aims, and so I had less space to explore the updated aims. Fortunately, I was able to be flexible and refine the interview as I went through to better orient the interviews towards the updated aims.

COVID also meant the research had to take place remotely. Though face-to-face is seen as the gold-standard (Deakin & Wakefield, 2014), I did not feel that it negatively impacted the study and in fact likely made it much easier for people to take part when it was convenient to them. Some participants reflected on feeling more comfortable to discuss personal topics in their own safe space. I believe future research can consider remote participation, even for in-depth qualitative interviews, as a real option as opposed to something to be avoided.

Other Methodological Challenges and Limitations
An issue was raised when it became clear that some of the participants that had self-certified that they met inclusion criteria did not. This became clear during part B of the study (qualitative interviews) where several hours of conversation and reflection led to it becoming clear that they had violated one or more of the inclusion criteria related to previous use of psychotropic medication or diagnosis of a mental health condition. This presented a dilemma – on one hand, I did not believe that this would impact the validity of the study’s conclusions as common mental health problems like depression and anxiety are highly comorbid with psychosis (Wigman et al., 2012) – in fact, it would likely increase its ecological validity. Also, in part B we were interviewing only a very small subset of all participants from part A – in reality, it was likely that many more participants who had not been interviewed also broke inclusion criteria so removing these few would not truly resolve the issue. Finally, removing the participants would cause huge problems for my research as it would reduce my data set immensely and mean that a lot of time and effort had been completely wasted. On the other hand, keeping the data of these participants would mean agreeing to contravene a priori criteria which are important for high-quality, rigorous research. Ultimately, we did decide include the data for pragmatic reasons.

**Strengths**

The empirical paper had a high number of participants for the quantitative analysis, exceeding by far what was identified as necessary by the power analysis, enabling high levels of confidence in the findings.

Qualitative explorations of schematic beliefs in psychosis are rare in the literature. Furthermore, the use of framework analysis as a qualitative methodology in the empirical paper represents a further strength. Given the answer-response nature of the interviews with often relatively short answers, it was difficult to approach this data set inductively as
per methodology such as thematic analysis (Joffe, 2012). Framework analysis enabled us to
approach the question more deductively, which also fitted well with the quantitative
elements of the study and the overall research question of considering schemata as a
mediator – we were therefore looking for evidence of this relationship qualitatively, rather
than trying to generate brand new theory. Nevertheless, we still had the freedom to
generate insights later on in the analytic process.

Throughout iterations of my review and empirical paper, I learnt the importance of
being concise. At first, this was challenging as it felt that there were many important points
to cover. However, with appropriate support and supervision, I became practised at
recognising what was essential to the ‘narrative’ of the paper, and what was not,
attempting to follow an ‘hourglass’ structure.

**Systematic Review**

I also faced challenges during the systematic review. Pulling together diverse
literature was difficult at times, as there is no universally agreed definition of what
constitutes ‘psychotic symptoms’. This meant there was much room for interpretation. This
was especially evident regarding psychoanalytic literature, which frequently used a
definition of ‘psychotic’ which was very different to the one I was using, meaning many
papers that were not a good fit came up. I also noticed the high number of studies that did
not measure psychotic symptoms at all. Though some studies did look at something that
could be considered a psychotic symptom (such as research with borderline personality
disorder populations: manic/delusional or dissociative symptoms; or research with people
with PTSD: intrusions, dissociation, paranoia), if they did not measure it as a psychotic
symptom, these studies could not be included.
However, choosing to use broad inclusion criteria represented a strength of the review, as it enabled the identification of papers that would likely have been missed by other reviews. We also ensured that we adhered to robust criteria set out a priori on PROSPERO to ensure we were not impacted by any biases as the findings became clearer.

Unfortunately, the broad criteria meant that there were many different kinds of therapeutic approaches included in the review, meaning it was not possible to meta-analyse the results based on the criteria we had set out a priori. Additionally, although we made every effort to avoid bias, the risk of selection bias persists. If a study did not describe its intervention in a way that matched our definition of trauma-focused (i.e., by involving a reappraisal of a traumatic memory), it would have not been picked up by our search, even if it would have met criteria.

In conducting a systematic review and making my own judgements (guided by appropriate tools) on the quality and level of evidence of each individual study, I was struck by how somewhat misleading certain papers can be in overstating the weight of their conclusions whilst underplaying the limitations. In my write-up, I attempted to give the most space to studies of a higher quality to attempt to ameliorate this. In contrast, I have found it much easier to consider the limitations of my research rather than the strengths. I believe it to be important to be honest and pragmatic in reporting results to avoid misleading the scientific community and contributing to the replication crisis in research, and in psychology specifically (Wiggins & Christopherson, 2019).

Future Research

There is a rich and detailed data set that emerged from the interviews as part of the empirical paper. There are many other analyses and papers that could come from this data set, including the role of emotion, PTSD intrusion and psychosis links, a greater
utilisation of the quantitative data that came from the clinical interviews, a more detailed consideration of coping styles, differences in presentation between intrusions experienced as images or those experienced as memories, and differences between adulthood and childhood memories.

Type of trauma is a particularly salient topic. It was outside the scope of the current study to comment upon this, but it was interesting to note in the correlation analysis that the relationships that survived a highly conservative Bonferroni correction were largely related to emotional abuse and neglect. Some researchers have considered that this is likely because emotional abuse and neglect may underlie all types of abuse (Rees, 2010) - i.e., it is hard to imagine a sexually abusive relationship that is not also emotionally abusive. A particularly interesting finding that may warrant further investigation is that other-negative schemata were significantly linked to emotional abuse (but not other-positive), whilst other-positive schemata were significantly linked to emotional neglect (but not other-negative). Differences between positive and negative schemata could be considered in more detail, rather than being thought of as broadly opposites of each other.

In future research, I would also consider that simply asking people about schema may not be the most valid method of assessing schema. Imagery has been indicated to be highly relevant, with some researchers suggesting that exploring imagery can be more detailed than a verbal description (Holmes & Matthews, 2005) and provide a deeper exploration of schema (Stopa, 2009).

Future research towards the targeting of schemata in psychological treatments would benefit from gaining qualitative information on people’s perceptions of how shifting schemata could impact them would gain valuable information on the face validity and acceptability of psychological treatments targeting schemata for this purpose.
Future research can include healthy, clinical high risk (CHR) and those diagnosed with a psychotic disorder. Such research can consider what might confer protection or resilience against ‘converting’ to psychosis. Schema-focused treatments could be one potential factor. A consideration of how this could be provided in real-life contexts with real-world budgets, restrictions and constraints could also be helpful – e.g. are group interventions worthwhile, and can schema-focused work be provided as an adjunct alongside existing CBT treatment?

Finally, particularly relevant to the area of PTSD/psychosis research is research that looks into links between PTSD intrusions and psychotic symptoms, continuing the work of researchers such as Hardy et al. (2005). Of note and relevance to the current research, the consideration of schematic links could be thought of as analogous to the consideration of thematic links between trauma and psychosis. It was also interesting to see how the current study population were more easily to recognise direct content links between trauma and psychotic symptoms than previous research on people diagnosed with psychotic illnesses have, possibly speaking to a protective role of insight. Future research could also consider this.
References


Appendices
### Appendix A

Full List of Systematic Review Search Terms by Database

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<tr>
<th>Ovid MEDLINE(R) and Epub Ahead of Print, In-Process &amp; Other Non-Indexed Citations and Daily</th>
<th>Search 1:</th>
<th>Search 2:</th>
<th>Search 3:</th>
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<tr>
<td>1946 to 2020</td>
<td>Psychotic symptoms</td>
<td>Trauma-focussed</td>
<td>Psychotherapy</td>
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<tr>
<td>exp &quot;schizophrenia spectrum and other psychotic disorders&quot;/ OR Borderline Personality Disorder/ OR exp &quot;Bipolar and Related Disorders&quot;/ OR psychotic.ab,ti</td>
<td>exp &quot;Trauma and Stressor Related Disorders&quot;/ OR exp Crime Victims/ OR exp Bullying/ OR exp adverse childhood experiences/ or exp child abuse/ or exp physical abuse/ or exp rape/ or exp terrorism/ or exp torture/ OR exp Survivors/ OR &quot;Trauma-focu?ed&quot;.ab,ti</td>
<td>exp Psychotherapy/ OR &quot;psychological therapy&quot;.ab,ti OR &quot;Cognitive Behavi?r* Therap*&quot;.ab,ti OR CBT.ab,ti OR &quot;Eye Movement Desensiti?ation Reprocessing&quot;.ab,ti OR EMDR.ab,ti OR &quot;Narrative Exposure Therapy&quot;.ab,ti OR NET.ab,ti OR &quot;Contextual Processing Theory&quot;.ab,ti OR &quot;Cognitive Processing Therapy&quot;.ab,ti or CPT.ab,ti OR &quot;Exposure Therapy&quot;.ab,ti OR &quot;Systemic Therapy&quot;.ab,ti OR counselling.ab,ti OR &quot;Behavi?ral Therapy&quot;.ab,ti OR &quot;Cognitive Therapy&quot;.ab,ti OR psychoanaly*.ab,ti OR psychodynamic.ab,ti</td>
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<td>OR hallucinat*.ab,ti OR delus*.ab,ti OR paranoi*.ab,ti OR voice*.ab,ti OR intrusi*.ab,ti OR &quot;ultra high risk&quot;.ab,ti OR UHR.ab,ti OR &quot;at risk mental state&quot;.ab,ti</td>
<td>OR trauma*.ab,ti OR PTSD.ab,ti OR &quot;post-traumatic stress&quot;.ab,ti OR CPTSD.ab,ti OR &quot;complex trauma&quot;.ab,ti OR neglect*.ab,ti OR maltreatment.ab,ti OR bully*.ab,ti OR victim*.ab,ti OR reprocessing.ab,ti</td>
<td>OR CPT.ab,ti OR &quot;Cognitive Therapy&quot;.ab,ti OR psychoanaly*.ab,ti OR psychodynamic.ab,ti</td>
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Search 4:  
Search 1 AND Search 2 AND Search 3  
Limited to English and Journal Article
### APA PsycInfo
1806 to 2020

<table>
<thead>
<tr>
<th>Search 1:</th>
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<th>Search 3:</th>
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<tbody>
<tr>
<td>Psychotic symptoms</td>
<td>Trauma-focussed</td>
<td>Psychotherapy</td>
</tr>
<tr>
<td>exp psychosis/ OR bipolar disorder/ OR borderline personality disorder/ OR psychotic.ab,ti OR hallucinat*.ab,ti OR delus*.ab,ti OR paranoia*.ab,ti OR voice*.ab,ti OR intrusi*.ab,ti OR &quot;ultra high risk&quot;.ab,ti OR UHR.ab,ti OR &quot;at risk mental state&quot;.ab,ti</td>
<td>&quot;emotional trauma&quot;/ OR exp injuries/ OR &quot;post-traumatic stress&quot;/ OR &quot;traumatic loss&quot;/ OR exp adversity/ OR exp disasters/ OR exp accidents/ OR exp &quot;stress and trauma related disorders&quot;/ OR exp crime victims/ OR exp bullying/ OR exp Child Abuse/ or exp Emotional Abuse/ or exp Physical Abuse/ or exp Sexual Abuse/ OR exp survivors/ OR &quot;Trauma-focused&quot;.ab,ti OR trauma*.ab,ti OR PTSD.ab,ti OR &quot;post-traumatic stress&quot;.ab,ti OR CPTSD.ab,ti OR &quot;complex trauma&quot;.ab,ti OR neglect*.ab,ti OR maltreatment.ab,ti OR bully*.ab,ti OR victim*.ab,ti OR reprocessing.ab,ti</td>
<td>exp psychotherapy/ OR &quot;psychological therapy&quot;.ab,ti OR &quot;Cognitive Behavi?r&quot;.ab,ti OR CBT.ab,ti OR &quot;Eye Movement Desensitization Reprocessing&quot;.ab,ti OR EMDR.ab,ti OR &quot;Narrative Exposure Therapy&quot;.ab,ti OR NET.ab,ti OR &quot;Contextual Processing Theory&quot;.ab,ti OR &quot;Cognitive Processing Therapy&quot;.ab,ti or CPT.ab,ti OR &quot;Exposure Therapy&quot;.ab,ti OR &quot;Systemic Therapy&quot;.ab,ti OR counselling.ab,ti OR &quot;Behavioral Therapy&quot;.ab,ti OR &quot;Cognitive Therapy&quot;.ab,ti OR psychoanaly*.ab,ti OR psychodynamic.ab,ti</td>
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Search 4:
Search 1 AND Search 2 AND Search 3
Limited to English and Peer-Reviewed Journal
### PTSDPubs
1945 to 2020

<table>
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<tr>
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<td><strong>Search 2:</strong> Trauma-focussed</td>
<td><strong>Search 3:</strong> Psychotherapy</td>
</tr>
<tr>
<td>Psychotic symptoms</td>
<td>MAINSUBJECT.EXACT. EXPLODE(&quot;Psychotic Disorders&quot;) OR MAINSUBJECT.EXACT. EXPLODE(&quot;Bipolar Disorders&quot;) OR MAINSUBJECT.EXACT. EXPLODE(&quot;Borderline Personality Disorder&quot;) OR ab,ti(psychotic OR hallucinat* OR delus* OR paranoi* OR voice* OR intrusi* OR &quot;ultra high risk&quot; OR &quot;at risk mental state&quot;)</td>
<td>MAINSUBJECT.EXACT.EXplode(&quot;Psychotherapy&quot;) OR ab,ti(&quot;psychological therapy&quot; OR &quot;Cognitive Behavioral Therapy&quot; OR CBT OR &quot;Eye Movement Desensitization Reprocessing&quot; OR EMDR OR &quot;Narrative Exposure Therapy&quot; OR NET OR &quot;Contextual Processing Theory&quot; OR &quot;Cognitive Processing Therapy&quot; OR CPT OR &quot;Exposure Therapy&quot; OR &quot;Systemic Therapy&quot; OR counselling OR &quot;Behavioral Therapy&quot; OR &quot;Cognitive Therapy&quot; OR psychoanalytic OR psychodynamic)</td>
</tr>
</tbody>
</table>

**Search 4:**
Search 1 AND Search 2 AND Search 3
Limited to English and Scholarly Journals
Appendix B

Formulae Regarding the Calculation of Hedges’ g

For between-subjects designs, Hedges’ g was calculated manually from reported standard deviations, means and n. If standard deviation was not reported, then these were calculated from data that were available, such as confidence intervals, standard errors, t-values or p-values, following Cochrane Handbook procedures (Higgins & Green, 2011).

For within-subjects designs where Cohen’s d was reported, Hedges’ g was calculated using the J-correction (Hedges & Olkin, 1985):

\[
Hedges' \ g = Cohen's \ d \times \left( 1 - \frac{3}{4(n_{pairs} - 1) - 1} \right)
\]

Where this was not reported, where possible, an effect size was calculated manually. To do so, an estimate of the correlation between pre- and post-scores is required to account for the violation of independence. Given this is rarely reported, an estimate of 0.6 was used based on the median within-group correlation calculated from 811 pre-post clinical trial arms (Balk et al., 2012). The following formula was used:

\[
Hedges' \ g = Cohen's \ d \times \left( 1 - \frac{3}{4(n_{pairs} - 1) - 1} \right)
\]

In cases where further assumptions of Cohen’s d and Hedges’ g are violated (such as the requirement for a normal distribution and to be based on means), the effect size r has been calculated from z where necessary using the following formula:

\[ r = z/\sqrt{N}. \]
Appendix C
Case Series Quality Appraisal Questions by Number

Quality Appraisal Checklist for Case Series Studies
and Instructions for Use

<table>
<thead>
<tr>
<th>Study objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Was the hypothesis/aim/objective of the study clearly stated?</td>
</tr>
<tr>
<td><strong>Yes:</strong> The hypothesis/aim/objective of the study was clearly reported (includes patients, intervention and outcome).</td>
</tr>
<tr>
<td><strong>Partial:</strong> Only one or two components (patients, intervention, or outcome) were included.</td>
</tr>
<tr>
<td><strong>No:</strong> The hypothesis/aim/objective was not reported.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study design</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Was the study conducted prospectively?</td>
</tr>
<tr>
<td><strong>Yes:</strong> It was clearly stated that the study was conducted prospectively.</td>
</tr>
<tr>
<td><strong>Unclear:</strong> Unclear or no information was provided.</td>
</tr>
<tr>
<td><strong>No:</strong> The study clearly stated it was a retrospective study.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study population</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Were the cases collected in more than one centre?</td>
</tr>
<tr>
<td><strong>Yes:</strong> Cases were collected in more than one centre (multicentre study).</td>
</tr>
<tr>
<td><strong>Unclear:</strong> Unclear where the patients came from.</td>
</tr>
<tr>
<td><strong>No:</strong> Cases were collected from one centre.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study population</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Were patients recruited consecutively?</td>
</tr>
<tr>
<td><strong>Yes:</strong> There was a clear statement or it was clear from the context that the patients were recruited consecutively; or the study stated that all eligible patients were recruited.</td>
</tr>
<tr>
<td><strong>Unclear:</strong> No information was provided about the method used to recruit patients in the study.</td>
</tr>
<tr>
<td><strong>No:</strong> The study clearly stated that patients were not recruited consecutively; or the patients were recruited based on other criteria such as access to intervention determined by the distance or availability of resources.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study population</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Were the characteristics of the patients included in the study described?</td>
</tr>
<tr>
<td><strong>Yes:</strong> All of the most relevant characteristics of the patients were reported (for example, number, age, gender, ethnicity, severity of disease/condition, comorbidity, or etiology).</td>
</tr>
<tr>
<td><strong>Partial:</strong> Some, but not all, of the most relevant characteristics were reported.</td>
</tr>
<tr>
<td><strong>No:</strong> Only the number of patients was reported.</td>
</tr>
</tbody>
</table>

*Note: Assessor(s) should decide which aspects are important before using the checklist.*
6. Were the eligibility criteria (i.e. inclusion and exclusion criteria) for entry into the study clearly stated?

**Yes**: Both inclusion and exclusion criteria were reported.

**Partial**: Either the inclusion or exclusion criteria were reported.

**No**: Neither inclusion nor exclusion criteria were reported.

*Note: Assessor(s) should decide which aspects are important before using the checklist.*

7. Did patients enter the study at a similar point in the disease?

**Yes**: It was clear from the baseline data presented in the study (for example, tables of patients’ characterises) that the majority (at least 80%) of patients entered the study at a similar point in terms of the duration and severity of the disease/condition and the presence of co-morbidities/complications.

**Unclear**: There was no baseline information on patients’ characteristics to make a judgment.

**No**: There was a wide range in the severity of the disease/condition and co-morbidities/complications in patients at baseline.

*Note: Assessor(s) should decide which aspects are important before using the checklist. It might be useful to discuss with specialists to determine the most important aspects that should be considered.*

### Intervention and co-intervention

8. Was the intervention of interest clearly described?

**Yes**: All of the most relevant characteristics of the intervention were reported (for example, dosage, frequency or duration of intervention, administration methods, technical parameters, or characteristics of a device).

**Partial**: Some, but not all, of the most relevant characteristics were reported.

**No**: Only the name of the intervention was reported.

*Note: Assessor(s) should decide which aspects are important before using the checklist.*

9. Were additional interventions (co-interventions) clearly described?

**Yes**: All of the most relevant characteristics of the co-intervention(s) were reported (for example, different type, dosage, frequency of administration, or duration); or the study clearly stated that a co-intervention was not administered for clinical reasons.

**Partial**: Some, but not all, of the most relevant characteristics of the co-intervention were reported.

**No**: No information about co-intervention(s) was provided; or only the name(s) of the co-intervention(s) were mentioned.

*Note: Assessor(s) should decide which aspects are important before using the checklist.*

### Outcome measures

10. Were relevant outcome measures established a priori?

**Yes**: All relevant outcome measures were stated in the introduction or methods section.

**Partial**: Some, but not all, of the relevant outcome measures were stated in the introduction or method section.
No: None of the relevant outcome measures were stated in the introduction or method section.

11. **Were outcome assessors blinded to the intervention that patients received?**
   - **Yes:** The relevant outcomes were assessed by individuals who were not aware of the intervention. Answer yes when blinding is not applicable or is unnecessary (for example, mortality).
   - **Unclear:** The study did not report whether the outcome assessors were aware of the intervention.
   - **No:** It was clearly stated or obvious from the context that the relevant outcomes were analyzed by individuals who were aware of the intervention provided to patients.

12. **Were the relevant outcomes measured using appropriate objective/subjective methods?**
   - **Yes:** All relevant outcomes were measured with appropriate methods. These measures can be objective (for example, gold standard tests or standardized clinical tests), subjective (for example, self-administered questionnaires, standardized forms, or patient symptoms interview forms), or both.
   - **Partial:** Some, but not all, relevant outcomes were measured with appropriate methods.
   - **No:** The methods used to measure the relevant outcomes were inappropriate.
   *Note: Assessor(s) should decide which methods are appropriate before using the checklist.*

13. **Were the relevant outcome measures made before and after the intervention?**
   - **Yes:** The relevant outcome measures were made pre- and post-intervention; or the baseline measurements were not possible (for example, death).
   - **Unclear:** The study did not report when the outcome measures were made.
   - **No:** The outcome measures were only made post-intervention.

**Statistical analysis**

14. **Were the statistical tests used to assess the relevant outcomes appropriate?**
   - **Yes:** The statistical tests were used appropriately (for example, parametric test for normally distributed population vs. nonparametric test for non-Gaussian population). Answer yes if no statistical analysis was performed and reasons for this were stated.
   - **Unclear:** The statistical tests were not described in the methods section of the study.
   - **No:** The statistical tests used were inappropriate.
   *Note: Assessor(s) should decide which statistical tests are appropriate before using the checklist. Seek expert assistance if necessary.*

**Results and conclusions**

15. **Was follow-up long enough for important events and outcomes to occur?**
   - **Yes:** It was clear from the information provided that the follow-up period was long enough for the majority (at least 80%) of patients, to allow for important events and outcomes (for example, changes in clinical status, adverse events) to occur.
   - **Unclear:** The length of follow-up was not clearly reported.
   - **No:** It is clear from the information provided that the follow-up period was not long enough to allow for important events and outcomes to occur.
**Note:** Assessor(s) should define the appropriate duration of follow-up for each outcome of interest (for example, short-term and long-term adverse events).

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>Partial</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Were losses to follow-up reported?</td>
<td>The number or proportion of patients lost to follow-up was clearly reported; the authors reported outcome results on all patients initially included; or the number lost to follow-up can be subtracted from the number of patients enrolled and the number of patients included in the final analysis.</td>
<td>There was a discrepancy between the number or proportion of patients reported in tables, figures, and text.</td>
<td>The number or proportion of patients lost to follow-up was not reported.</td>
</tr>
<tr>
<td>17. Did the study provide estimates of random variability in the data analysis of relevant outcomes?</td>
<td>The estimates of the random variability (for example, standard error, standard deviation, confidence interval for normally distributed data or range and interquartile range for non-normally distributed data) were reported for all of the relevant outcomes or could be calculated from the raw data presented in the study.</td>
<td>The estimates of the random variability were reported for some, but not all of the relevant outcomes.</td>
<td>The estimates of the random variability were not reported for any of the relevant outcomes.</td>
</tr>
<tr>
<td>18. Were the adverse events reported?</td>
<td>The undesirable or unwanted events during the study period or within a pre-specified time period were reported; or the absence of adverse event(s) was mentioned in the study.</td>
<td>Some, but not all, important adverse events were reported.</td>
<td>There was no statement about the presence or absence of adverse events.</td>
</tr>
<tr>
<td>19. Were the conclusions of the study supported by the results?</td>
<td>The conclusions of the study were supported by the evidence presented in the results and discussion sections.</td>
<td>Unclear conclusion statement that makes it difficult to link the presented evidence to conclusions.</td>
<td>The conclusions were not supported by the evidence presented in the results and discussion sections.</td>
</tr>
</tbody>
</table>

**Competing interests and sources of support**

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>Partial</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>20. Were both competing interests and sources of support for the study reported?</td>
<td>Both competing interests and sources of support (financial or other) received for the study were reported; or the absence of any competing interest and source of support was acknowledged.</td>
<td>Either the competing interest or source of support was reported.</td>
<td>Neither competing interests nor sources of support were reported.</td>
</tr>
</tbody>
</table>

**Note:** Assessor(s) should decide which adverse events are most important. Seek clinical expert assistance if necessary.
Appendix D

Ethical Approval

25th March 2020

Dr Michael Bloomfield
Translational Psychiatry Research Group
Division of Psychiatry
UCL

Dear Dr Bloomfield

Notification of Ethics Approval with Provisos
Project ID/Title: 17495/001: Investigating the mechanisms underlying psychosis associated with childhood trauma

Further to your satisfactory responses to the Committee’s comments, I am pleased to confirm in my capacity as Chair of the UCL Research Ethics Committee (REC) that your study has been ethically approved by the UCL REC until 1st March 2025.

Ethical approval is subject to the following conditions:

Notification of Amendments to the Research
You must seek Chair’s approval for proposed amendments (to include extensions to the duration of the project) to the research for which this approval has been given. Each research project is reviewed separately and if there are significant changes to the research protocol you should seek confirmation of continued ethical approval by completing an ‘Amendment Approval Request Form’ http://ethics.grad.ucl.ac.uk/responsibilities.php

Adverse Event Reporting – Serious and Non-Serious
It is your responsibility to report to the Committee any unanticipated problems or adverse events involving risks to participants or others. The Ethics Committee should be notified of all serious adverse events via the Ethics Committee Administrator (ethics@ucl.ac.uk) immediately the incident occurs. Where the adverse incident is unexpected and serious, the Joint Chairs will decide whether the study should be terminated pending the opinion of an independent expert. For non-serious adverse events the Joint Chairs of the Ethics Committee should again be notified via the Ethics Committee Administrator within ten days of the incident occurring and provide a full written report that should include any amendments to the participant information sheet and study protocol. The Joint Chairs will confirm that the incident is non-serious and report to the Committee at the next meeting. The final view of the Committee will be communicated to you.

Final Report
At the end of the data collection element of your research we ask that you submit a very brief report (1-2 paragraphs will suffice) which includes in particular issues relating to the ethical implications of the research.
i.e. issues obtaining consent, participants withdrawing from the research, confidentiality, protection of participants from physical and mental harm etc.

In addition, please:

- ensure that you follow all relevant guidance as laid out in UCL’s Code of Conduct for Research: https://www.ucl.ac.uk/srs/file/579
- note that you are required to adhere to all research data/records management and storage procedures agreed as part of your application. This will be expected even after completion of the study.

With best wishes for the research.

Yours sincerely

Professor Michael Heinrich
Joint Chair, UCL Research Ethics Committee
Appendix E

Measures Used in the Empirical Paper: CTQ, CAPE-P15, BCSS, FAS

CTQ

Childhood Traumatic Events Scale
For the following questions, answer each item that is relevant. Be as honest as you can. Each question refers to an event that may have experienced prior to the age of 17.

1. Prior to the age of 17, did you experience a death of a very close friend or family member? If yes, how old were you?
   If yes, how traumatic was this? (using a 7-point scale, where 1 = not at all traumatic, 4 = somewhat traumatic, 7 = extremely traumatic)
   If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal)

2. Prior to the age of 17, was there a major upheaval between your parents (such as divorce, separation)? If yes, how old were you?
   If yes, how traumatic was this? (where 7 = extremely traumatic)
   If yes, how much did you confide in others? (7 = a great deal)

3. Prior to the age of 17, did you have a traumatic sexual experience (raped, molested, etc.)? If yes, how old were you?
   If yes, how traumatic was this? (7 = extremely traumatic)
   If yes, how much did you confide in others? (7 = a great deal)

4. Prior to the age of 17, were you the victim of violence (child abuse, mugged or assaulted -- other than sexual)? If yes, how old were you?
   If yes, how traumatic was this? (7 = extremely traumatic)
   If yes, how much did you confide in others? (7 = a great deal)

5. Prior to the age of 17, were you extremely ill or injured? If yes, how old were you?
   If yes, how traumatic was this? (7 = extremely traumatic)
   If yes, how much did you confide in others? (7 = a great deal)

6. Prior to the age of 17, did you experience any other major upheaval that you think may have shaped your life or personality significantly? If yes, how old were you?
   If yes, what was the event?
   If yes, how traumatic was this? (7 = extremely traumatic)
   If yes, how much did you confide in others? (7 = a great deal)

CAPE-P15

<table>
<thead>
<tr>
<th>Question</th>
<th>Question no. in CAPE-42</th>
<th>Subscale</th>
</tr>
</thead>
<tbody>
<tr>
<td>People seem to drop hints about you or say things with a double meaning</td>
<td>2</td>
<td>Persecutory ideation</td>
</tr>
<tr>
<td>Some people are not what they seem to be</td>
<td>6</td>
<td>Persecutory ideation</td>
</tr>
<tr>
<td>Being persecuted in some way</td>
<td>7</td>
<td>Persecutory ideation</td>
</tr>
<tr>
<td>Scenario</td>
<td>Frequency</td>
<td>Psychiatric Syndrome</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-----------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>Conspiracy against you</td>
<td>10</td>
<td>Persecutory ideation</td>
</tr>
<tr>
<td>Electrical devices such as computers can influence the way you think</td>
<td>17</td>
<td>Bizarre experiences</td>
</tr>
<tr>
<td>People look at you oddly because of your appearance</td>
<td>22</td>
<td>Persecutory ideation</td>
</tr>
<tr>
<td>Thoughts in your head are being taken away from you</td>
<td>24</td>
<td>Bizarre experiences</td>
</tr>
<tr>
<td>Thoughts in your head are not your own</td>
<td>26</td>
<td>Bizarre experiences</td>
</tr>
<tr>
<td>Thoughts so vivid that you were worried other people would hear them</td>
<td>28</td>
<td>Bizarre experiences</td>
</tr>
<tr>
<td>Hear your own thoughts being echoed back to you</td>
<td>30</td>
<td>Bizarre experiences</td>
</tr>
<tr>
<td>Under the control of some force or power other than yourself</td>
<td>31</td>
<td>Bizarre experiences</td>
</tr>
<tr>
<td>Hear voices when you are alone</td>
<td>33</td>
<td>Perceptual abnormalities</td>
</tr>
<tr>
<td>Hear voices talking to each other when you are alone</td>
<td>34</td>
<td>Perceptual abnormalities</td>
</tr>
<tr>
<td>A double has taken the place of a family member, friend or acquaintance</td>
<td>41</td>
<td>Bizarre experiences</td>
</tr>
<tr>
<td>See objects, people or animals that other people cannot see</td>
<td>42</td>
<td>Perceptual abnormalities</td>
</tr>
</tbody>
</table>
BCSS

The Brief Core Schema Scales: beliefs about self and others

This questionnaire lists beliefs that people can hold about themselves and other people. Please indicate whether you hold each belief (NO or YES). If you hold the belief then please indicate how strongly you hold it by circling a number (1–4). Try to judge the beliefs on how you have generally, over time, viewed yourself and others. Do not spend too long on each belief. There are no right or wrong answers and the first response to each belief is often the most accurate.

<table>
<thead>
<tr>
<th>MYSELF</th>
<th>Believe it slightly</th>
<th>Believe it moderately</th>
<th>Believe it very much</th>
<th>Believe it totally</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am unloved</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I am worthless</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I am weak</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I am vulnerable</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I am sad</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I am a failure</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I am respected</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I am valuable</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I am talented</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I am successful</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I am good</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I am interesting</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OTHER PEOPLE</th>
<th>Believe it slightly</th>
<th>Believe it moderately</th>
<th>Believe it very much</th>
<th>Believe it totally</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other people are hostile</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Other people are harsh</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Other people are unkind</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Other people are bad</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Other people are devious</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Other people are nasty</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Other people are fair</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Other people are good</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Other people are truth</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Other people are tolerant</td>
<td>NO      YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Other people are supportive</td>
<td>NO  YES</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

FAS

- Does your family own a car, van or truck? (No [0]; Yes, one [1]; Yes, two or more [2])

- Do you have your own bedroom for yourself? (No [0]; Yes [1])

- During the past 12 months, how many times did you travel away on holiday with your family? (Not at all [0]; Once [1]; Twice [2]; More than twice [3])

- How many computers does your family own? (None [0]; One [1]; Two [2]; More than two [3])
Appendix F
Final Version of the Interview Schedule

Edited CAARMS

<table>
<thead>
<tr>
<th>1: POSITIVE SYMPTOMS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.1 UNUSUAL THOUGHT CONTENT</strong></td>
</tr>
<tr>
<td><strong>Delusional Mood and Perplexity (‘Non Crystallized Ideas’)</strong></td>
</tr>
<tr>
<td>▪ Have you had the feeling that something odd is going on that you can’t explain? What is it like?</td>
</tr>
<tr>
<td>▪ Do you feel puzzled by anything? Do familiar surroundings feel strange?</td>
</tr>
<tr>
<td>▪ Do you feel that you have changed in some way?</td>
</tr>
<tr>
<td>▪ Do you feel that others, or the world, have changed in some way?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Ideas of Reference</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ <strong>Ideas of Reference:</strong> Have you felt that things that were happening around you had a special meaning, or that people were trying to give you messages? What is it like? How did it start?</td>
</tr>
<tr>
<td>▪</td>
</tr>
<tr>
<td>▪</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Bizarre Ideas (‘Crystallized Ideas’)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ <strong>Made thoughts, feelings, impulses:</strong> Have you felt that someone, or something, outside yourself has been controlling your thoughts, feelings, actions or urges? Have you had feelings or impulses that don’t seem to come from yourself?</td>
</tr>
<tr>
<td>▪ <strong>Somatic Passivity:</strong> Do you get any strange sensations in your body? Do you know what causes them? Could it be due to other people or forces outside yourself?</td>
</tr>
<tr>
<td>▪ <strong>Thought Insertion:</strong> Have you felt that ideas or thoughts that are not your own have been put into your head? How do you know they are not your own? Where do they come from?</td>
</tr>
<tr>
<td>▪ <strong>Thought Withdrawal:</strong> Have you ever felt that ideas or thoughts are being taken out of your head? How does that happen?</td>
</tr>
<tr>
<td>▪ <strong>Thought Broadcasting:</strong> Are your thoughts broadcast so that other people know what you are thinking?</td>
</tr>
<tr>
<td>▪ <strong>Thoughts Being Read:</strong> Can other people read your mind?</td>
</tr>
</tbody>
</table>

CAARMS - December 2006
## Unusual Thought Content - Global Rating Scale

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never, absent</td>
<td>Questionable</td>
<td>Mild</td>
<td>Moderate</td>
<td>Moderately severe</td>
<td>Severe</td>
<td>Psychotic and Severe</td>
</tr>
<tr>
<td>No unusual thought content.</td>
<td>Mild elaboration of conventional beliefs as held by a proportion of the population</td>
<td>Vague sense that something is different, or not quite right with the world, a sense that things have changed but not able to be clearly articulated. Subject not concerned/worried about this experience.</td>
<td>A feeling of perplexity. A stronger sense of uncertainty regarding thoughts than 2.</td>
<td>Referential ideas that certain events, objects or people have a particular and unusual significance. Feeling that experience may be coming from outside the self. Belief not held with conviction, subject able to question. Does not result in change in behaviour.</td>
<td>Unusual thoughts that contain completely original and highly improbable material. Subject can doubt (not held with delusional conviction), or which the subject does not believe all the time. May result in some change in behaviour, but minor.</td>
<td>Unusual thoughts containing original and highly improbable material held with delusional conviction (no doubt). May have marked impact on behaviour.</td>
</tr>
</tbody>
</table>

**Onset date:** ________________  **Offset date:** ________________

### Frequency and Duration

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
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<th>3</th>
<th>4</th>
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<th>6</th>
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<tbody>
<tr>
<td>Absent</td>
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<td>Once a month to twice a week - less than one hour per occasion</td>
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</table>

### Pattern of Symptoms

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
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</tr>
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<tbody>
<tr>
<td>No relation to substance use noted</td>
<td>Occurs in relation to substance use and at other times as well</td>
<td>Noted only in relation to substance use</td>
</tr>
</tbody>
</table>

### Level of Distress (in Relation to Symptoms)

Not At All Distressed  |  | Extremely Distressed  |

CAARMS: December 2006
1.2 NON-BIZARRE IDEAS

Non-Bizarre Ideas (‘Crystallized Ideas’)

- Suspiciousness, Persecutory Ideas: Has anybody been giving you a hard time or trying to hurt you? Do you feel like people have been talking about you, laughing at you, or watching you? What is it like? How do you know this?
- Grandiose Ideas: Have you been feeling that you are especially important in some way, or that you have powers to do things that other people can’t do?
- Somatic Ideas: Have you had the feeling that something odd is going on with your body that you can’t explain? What is it like? Do you feel that your body has changed in some way, or that there is a problem with your body shape?
- Ideas of Guilt: Do you feel you deserve punishment for anything you have done wrong?
- Nihilistic Ideas: Have you ever felt that you, or a part of you, did not exist, or was dead? Do you ever feel that the world does not exist?
- Jealous Ideas: Are you a jealous person? Do you worry about relationships that your spouse/boyfriend/girlfriend has with other people?
- Religious Ideas: Are you very religious? Have you had any religious experiences?
- Erotomanic Ideas: Is anyone in love with you? Who? How do you know this? Do you return his/her feelings?
### Non-Bizarre Ideas - Global Rating Scale

<table>
<thead>
<tr>
<th>0</th>
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<tr>
<td>Never, absent</td>
<td>Questionable</td>
<td>Mild</td>
<td>Moderate</td>
<td>Moderately severe</td>
<td>Severe</td>
<td>Psychotic and Severe</td>
</tr>
<tr>
<td>No non-bizarre ideas.</td>
<td>Subtle changes that could be reality based. Eg. Very self-conscious.</td>
<td>Increased self-consciousness. Eg. Feeling that others look at the subject, or talk about the subject. Or feeling of increased self-importance. Subject able to question.</td>
<td>Odd or unusual thoughts but whose content is not entirely implausible. May be some logical evidence. More evidence than rating of 4. Content of thoughts not original i.e. jealousy, mild paranoia.</td>
<td>Clearly ideosyncratic beliefs, which although ‘possible’ have arisen without logical evidence. Less evidence than rating of 3. Eg. Thoughts that others wish the subject harm, which can be easily dismissed.</td>
<td>Unusual thoughts about which there is some doubt (not held with delusional conviction), or which the subject does not believe all the time. May result in some change in behaviour, but minor.</td>
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**Onset date:** ____________  **Offset date:** ____________

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<tr>
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<tbody>
<tr>
<td>No relation to substance use/stress noted</td>
<td>Occurs in relation to substance use and at other times as well</td>
<td>Noted only in relation to substance use</td>
</tr>
</tbody>
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### Level of Distress (In Relation to Symptoms)

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not At All Distressed</td>
<td></td>
<td>Extremely Distressed</td>
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</tbody>
</table>

CAARMS: December 2006
1.3 Perceptual Abnormalities

Visual Changes
- Distortions, illusions: Are things in the environment different? Do they seem to be a different color, or different in some other way?
- Hallucinations: Do you experience things that appear to be real, but are not? Do you see things that you know are not there?

Auditory Changes
- Distortions, illusions: Are sounds distorted? Do they seem to be different in pitch, volume, or tone?
- Hallucinations: Do you hear things that you know are not there? Do you hear voices or other sounds that are not present?

Olfactory Changes
- Distortions, illusions: Can you smell things differently? Do scents seem to be stronger or weaker?
- Hallucinations: Do you smell things that you know are not there?

Gustatory Changes
- Distortions, illusions: Do tastes seem different? Are they stronger or weaker?
- Hallucinations: Do you taste things that you know are not there?

Tactile Changes
- Distortions, illusions, hallucinations: Do you feel sensations that are not there? Do they feel strange or different?

Somatic Changes
NOTE: Probes also used to rate Impaired Bodily Sensation, p.26
- Distortions, illusions: Do you feel sensations that are different in your body? Do they feel strange, or do they feel different?
- Hallucinations: Have you noticed any changes in the way your body feels? Are there sensations that are unusual?

CAARMS: December 2006
### Perceptual Abnormalities - Global Rating Scale

<table>
<thead>
<tr>
<th></th>
<th>0</th>
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<th>4</th>
<th>5</th>
<th>6</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Never absent</td>
<td>Questionable</td>
<td>Mild</td>
<td>Moderate</td>
<td>Moderately severe</td>
<td>Psychotic but not severe</td>
<td>Psychotic and severe</td>
</tr>
<tr>
<td>No abnormal perceptual experience.</td>
<td>Heightened, or dulled perceptions, distortions (eg lights/ shadows).</td>
<td>More puzzling experiences; more intense/vivid distortions/illusions, indistinct mumming, etc.</td>
<td>Subject unsure of nature of experiences. Able to dismiss. Not distressing. Derealisation/ depersonalisation</td>
<td>Much clearer experiences than 3 such as name being called, hearing phone ringing etc, but may be fleeting/ transient. Able to give plausible explanation for experience. May be associated with mild distress.</td>
<td>True hallucinations i.e. hearing voices or conversation, feeling something touching body. Subject able to question experience with effort. May be frightening or associated with some distress.</td>
<td>True hallucinations which the subject believes are true at the time of, and after, experiencing them. May be very distressing</td>
<td></td>
</tr>
</tbody>
</table>

**Onset date:**

**Offset date:**

**Frequency and Duration**

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
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**Pattern of Symptoms**

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
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<td></td>
</tr>
</tbody>
</table>

**Level of Distress (In Relation to Symptoms)**

- Not At All Distressed
- Extremely Distressed

CAARMS: December 2006
1.4 Disorganised Speech

Subjective Change:

- Do you notice any difficulties with your speech, or ability to communicate with others?

- Do you have trouble finding the correct word at the appropriate time?

- Have you found yourself going off on tangents when speaking and never getting to the point? Is this a recent change?

- Are you aware that you are talking about irrelevant things, or going off the track?

- Do other people ever seem to have difficulty in understanding what you are trying to say/trouble getting your message across?

Objective Rating of Disorganised Speech

- Is it difficult to follow what the subject is saying at times due to using incorrect words, being circumstantial or tangential?

- Is the subject vague, overly abstract or concrete? Can responses be condensed?

- Do they go off the subject often and get lost in their words? Do they appear to have difficulty finding the right words?

- Do they repeat words that you have used or adopt strange words (or "non-words") in the course of regular conversation?
### Disorganised Speech - Global Rating Scale

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>0</strong></td>
<td>Never, absent</td>
<td>Questionable</td>
<td>Mild</td>
<td>Moderate</td>
<td>Moderately severe</td>
<td>Severe</td>
</tr>
<tr>
<td></td>
<td>Normal logical speech, no disorganisation, no problems communicating or being understood.</td>
<td>Slight subjective difficulties eg problems getting message across. Not noticeable by others.</td>
<td>Somewhat vague, some evidence of circumstantiality, or irrelevance in speech. Feeling of not being understood.</td>
<td>Clear evidence of mild disconnection in speech and thought patterns. Links between ideas rather tangential. Increased feeling of frustration in conversation.</td>
<td>Marked circumstantiality, or tangentiality in speech, but responds to structuring in interview. May have to resort to gesture, or mime to communicate.</td>
<td>Lack of coherence, unintelligible speech, significant difficulty following line of thought, Loose association in speech.</td>
</tr>
</tbody>
</table>

**Onset date:** ______________  
**Offset date:** ______________

### Frequency and Duration

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
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</table>

### Level of Distress (In Relation to Symptoms)

<table>
<thead>
<tr>
<th>0</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not At All Distressed</td>
<td>Extremely Distressed</td>
</tr>
</tbody>
</table>

CAARMS: December 2006
2: COGNITIVE CHANGE - ATTENTION/CONCENTRATION

2.1 SUBJECTIVE EXPERIENCE (Huber's Basic Symptom)

Thought Form Problems:

NOTE: See also Alogia, p. 16

- Do your thoughts ever seem to stop, get blocked, or disappear (e.g. do you have 'trances', or 'blank spells')? Can you describe this more fully?
- Do you ever experience racing or confused, jumbled thoughts?
- Do other things, as well as your thoughts, seem to stop e.g. attention, hearing, sight, memory, speech, or movement?
- Do you ever lose your sense of personal identity? What do you think was the cause of this?

Memory Problems:

NOTE: See also Dissociative Symptoms, p. 38

- Have you had memory problems?
- Have you ever felt as if there were large gaps in your memory?
- Are they present all the time, or do they come and go? Have you noticed if the memory problems come at times of stress?
### Subjective Cognitive Change- Severity Rating Scale

<table>
<thead>
<tr>
<th>0 Never, absent</th>
<th>1 Questionable</th>
<th>2 Mild</th>
<th>3 Moderate</th>
<th>4 Moderately severe</th>
<th>5 Severe</th>
<th>6 Extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>No subjective difficulty with concentration/attention.</td>
<td></td>
<td>Mild, but definite problems e.g. some difficulty concentrating while reading, or watching TV.</td>
<td>Subjectively feeling muddled, or confused, racing, or slowed thoughts, difficulty understanding conversations. Occ. episodes of thought blocking.</td>
<td>Subjective feeling of being unable to think properly, confused, unable to understand others. More regular episodes of thought blocking OR Memory difficulties impair conversation, results in frequent misplacing of items.</td>
<td>Marked inattentiveness, feeling confused and overwhelmed at times, distracted by other things in the environment. Frequent episodes of thought block. OR Memory difficulties noted by others, distressing.</td>
<td>Subject reports extreme difficulty focussing on interview. Interview suspended due to impossibility of patient to concentrate or severe thought blocking. OR Severe memory problems.</td>
</tr>
</tbody>
</table>

Onset date: _______________  Offset date: _______________

### Frequency and Duration

| 0 Absent | 1 Less than once a month | 2 Once a month to less than one hour per occasion | 3 Once a month to twice a week – more than one hour per occasion OR 3 to 6 times a week – less than one hour per occasion | 4 3 to 6 times a week – more than an hour per occasion OR Daily – less than an hour per occ. | 5 Daily – more than an hour per occ. OR several times a day | 6 Continuous |

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CAARMS: December 2006
### 2.2 Observed Cognitive Change

**Observed Inattentiveness During Interview**

- Subject appears inattentive - looks away during interview, does not pick up the topic during a discussion, shifts focus of attention.
- Attention may be drawn to noise in adjoining room, objects around the room, Interviewer’s clothing etc.

<table>
<thead>
<tr>
<th>Severity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Never, absent. No abnormalities observed.</td>
</tr>
<tr>
<td>1</td>
<td>Questionable. Some questionable inattentiveness - may be explained by other events.</td>
</tr>
<tr>
<td>2</td>
<td>Mild. Mild problems with concentration. Objectively may be observed to shift focus of attention from interview 1 to 3 times. Not quite understanding what others are saying or the emotional tone of the conversation.</td>
</tr>
<tr>
<td>3</td>
<td>Moderate. Moderate concentration problems during interview. Mild disruption to flow of interview as a result.</td>
</tr>
<tr>
<td>4</td>
<td>Moderately severe. Poor concentration and attention significantly affect ability to perform tasks. Distraction clearly observed to interfere with flow of the interview.</td>
</tr>
<tr>
<td>5</td>
<td>Severe. Severe concentration and attention difficulties. Extremely difficult to conduct interview, or pursue a topic due to preoccupation with irrelevant stimuli.</td>
</tr>
<tr>
<td>6</td>
<td>Extreme. Inability to concentrate at all. Impossible to conduct interview due to preoccupation with irrelevant stimuli.</td>
</tr>
</tbody>
</table>

CAARMS: December 2006
3: EMOTIONAL DISTURBANCE

3.1 SUBJECTIVE EMOTIONAL DISTURBANCE (HUBER’S BASIC SYMPTOM)

Impaired Emotional Functioning:

NOTE: See also Anhedonia, p. 18; Depression, p. 29

- Have you noticed any change in your feelings, or emotions e.g., feel like you have no feelings, feel your emotions are ‘empty’, or that your emotions are somehow not genuine?
- Has there been any change in the way you are using your emotions?
- Have you still been able to enjoy things, or experience pleasure?
- Do you find that even when something sad happens, you are no longer able to feel sadness? Or when something happy happens, you can no longer feel happy?

Change in Affect:

- 

Inappropriate affect:
- Have you ever felt different on the inside from the way you look to others?
- Like your appearance was uncoordinated with your emotions? Would you smile, or laugh when talking about something that was sad, or not funny at all?

CAARMS: December 2006
### Subjective Emotional Disturbance - Severity Rating Scale

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
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<tr>
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<td>Moderately severe</td>
<td>Severe</td>
<td>Extreme</td>
</tr>
<tr>
<td>No subjective change in feelings, or emotions.</td>
<td>Subjectively sporadic, mild, but definite problems reported eg not able to enjoy things as much as previously. Some feeling of blunting of emotional responses. Affect is inappropriate, but not sustained.</td>
<td>Subjectively more frequent, or continuous problems. Some feeling of blunting of emotional responses. More pervasive feeling of inappropriate affect, but subject able to control somewhat.</td>
<td>Subject describes more marked change in emotions eg not able to express, or experience feelings as before. Sense of distance when with others. Inappropriate affect more difficult to hide from others.</td>
<td>Subject describes feeling of having no feelings, or emotions feel empty, or not genuine. Unable to feel sad at all. Severe degree of distance from others. Inappropriate affect interferes with relationships.</td>
<td>Subject reports constant emotional blunting, OR Inappropriate affect.</td>
<td></td>
</tr>
</tbody>
</table>

**Onset date:** ________________  **Offset date:** ________________

### Frequency and Duration

<table>
<thead>
<tr>
<th>0</th>
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<td>3 to 6 times a week – more than an hour per occasion OR daily – less than an hour per occ.</td>
<td>Daily – more than an hour per occ. OR several times a day</td>
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</tr>
</tbody>
</table>

### Pattern of Symptoms

<table>
<thead>
<tr>
<th>0</th>
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<th>2</th>
</tr>
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<tbody>
<tr>
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<td>Noted only in relation to substance use</td>
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</tbody>
</table>

CAARMS: December 2006
3.2 Observed Blunted Affect

**NOTE:** Incorporate informant information as well as interviewer’s impression

- Rate observed evidence of blunting of affect. For example, diminished facial expressions, reduced emotional tone in speech, reduced expressive movements and gestures.
- The rater may also feel a diminished ability to engage the subject.

**Observed Blunted Affect – Severity Rating Scale**

<table>
<thead>
<tr>
<th></th>
<th>0 Never, absent</th>
<th>1 Questionable</th>
<th>2 Mild</th>
<th>3 Moderate</th>
<th>4 Moderately severe</th>
<th>5 Severe, not psychotic</th>
<th>6 Extreme/psychotic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No abnormalities observed by interviewer, or others.</td>
<td>Slight degree of constriction of affect may be observed.</td>
<td>Observable constriction of emotional field. Avoidance or failure to display feelings. Reduced emotional expressivity. Interviewer feels a sense of ‘distance’, or decreased rapport.</td>
<td>More marked degree of dullness or blockade. Definite decrease in sense of rapport observed by interviewer. May have been reported, or commented on by informants.</td>
<td>Minimal evidence of affective display</td>
<td>Gross blunting of affect. No spontaneous emotional expression observed during interview. Definitely reported by informants.</td>
<td></td>
</tr>
</tbody>
</table>

CAARMS: December 2006
### 3.3 Observed Inappropriate Affect

**NOTE:** Incorporate informant information as well as interviewer’s impression

- Also rate clear-cut inappropriate affect (affect clearly discordant from the content of speech, or ideation (e.g. giggling when speaking of something sad).

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never, absent</td>
<td>Questionable</td>
<td>Mild</td>
<td>Moderate</td>
<td>Moderately severe</td>
<td>Severe</td>
<td>Extreme</td>
</tr>
<tr>
<td></td>
<td>No abnormalities observed by interviewer, or others.</td>
<td>Mild inappropriate affect during interview, or reported occasionally by others. Subject appears able to control.</td>
<td>More pervasive inappropriate emotion displayed. Does not dominate interview. Subject appears able to control somewhat.</td>
<td>More often reported by others - distracting during interview.</td>
<td>Inappropriate affect reported frequently. Interferes with social relationships and flow of interview.</td>
<td>Inappropriate affect throughout interview. Severely impacts on ability to conduct interview. Reported by others as occurring most of the time.</td>
<td></td>
</tr>
</tbody>
</table>

CAARMS: December 2006
5: BEHAVIOURAL CHANGE
Consider informant information as well as subjective report

5.1 SOCIAL ISOLATION

- Have you wanted to be alone more than usual recently? Has there been a reason for this? Have others commented on this?
- Have you missed important social events/school/work due to this?

<table>
<thead>
<tr>
<th>SOCIAL ISOLATION - SEVERITY RATING SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>Never, absent</td>
</tr>
<tr>
<td>No change in level of social activity.</td>
</tr>
</tbody>
</table>

Onset date: __________________________ Offset date: __________________________

Frequency and Duration

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absent</td>
<td>Less than once a month</td>
<td>Once a month to twice a week  more than one hour per occasion</td>
<td>Once a month to twice a week  more than one hour per occasion OR 3 to 6 times a week  less than one hour per occasion</td>
<td>3 to 6 times a week  more than an hour per occasion OR daily – less than an hour per occ.</td>
<td>Daily – more than an hour per occ. OR several times a day</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

CAARMS: December 2006
5.2 Impaired Role Function

NOTE: See also Depression, p. 29

- Have you been able to attend school/work as usual recently?
- Has your school/work performance dropped recently?
- Have you been less interested in your work/school recently? Have others commented on this? Is there a reason for this? (Phrase questions appropriately i.e. for job seekers etc)

Impaired Role Function - Severity Rating Scale

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Never, absent</td>
</tr>
<tr>
<td>1</td>
<td>Questionable</td>
</tr>
<tr>
<td>2</td>
<td>Mild</td>
</tr>
<tr>
<td>3</td>
<td>Moderate</td>
</tr>
<tr>
<td>4</td>
<td>Moderately severe</td>
</tr>
<tr>
<td>5</td>
<td>Severe</td>
</tr>
<tr>
<td>6</td>
<td>Extreme</td>
</tr>
</tbody>
</table>

- No recent change in role function.
- Subject reports mild impairment in performance of usual activities. Not noted by informants.
- Usual tasks performed with less care than usual. Missing occasional day of work/school. Noted as mild by informants.
- Around half of usual time spent on normal daily tasks. Decreased quality of task performance noted by others.
- Marked impairment of role functioning. Spending about half of day in aimless activity. Subject attempting no role function whatsoever.

Onset date: __________ Offset date: __________

Frequency and Duration

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Absent</td>
</tr>
<tr>
<td>1</td>
<td>Less than once a month</td>
</tr>
<tr>
<td>2</td>
<td>Once a month to twice a week</td>
</tr>
<tr>
<td>3</td>
<td>Once a month to twice a week — more than one hour per occasion OR 3 to 6 times a week — less than one hour per occasion</td>
</tr>
<tr>
<td>4</td>
<td>3 to 6 times a week — more than an hour per occasion OR daily — less than an hour per occ.</td>
</tr>
<tr>
<td>5</td>
<td>Daily — more than an hour per occ. OR several times a day</td>
</tr>
<tr>
<td>6</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

Pattern of Symptoms

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No relation to substance use noted</td>
</tr>
<tr>
<td>1</td>
<td>Occurs in relation to substance use and at other times as well</td>
</tr>
<tr>
<td>2</td>
<td>Noted only in relation to substance use</td>
</tr>
</tbody>
</table>

CAARMS: December 2006
### 6: MOTOR PHYSICAL CHANGES

#### 6.1 SUBJECTIVE COMPLAINTS OF IMPAIRED MOTOR FUNCTIONING

**(HUBER’S BASIC SYMPTOM)**

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
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<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never, absent</td>
<td>Questionable</td>
<td>Mild</td>
<td>Moderate</td>
<td>Moderately severe</td>
<td>Severe</td>
<td>Extreme</td>
</tr>
</tbody>
</table>

- No abnormal movements, or somatic difficulties reported by subject.
- Mild changes only. Feeling clumsier, more uncoordinated than usual, feeling slightly slowed down. Occasional grimace, or mildly unusual gait.
- Experiences noted in column 1, but the subject feels a more noticeable change. Reports control over.
- Changes such as loss of coordination. Movements distracted by other things. Different gait, new poses,tics or mannerisms. Loss of some previous abilities.
- Experiences noted in column 4, but more distressing. May include episodes of mutism, bizarre postures, copying others movements.
- Clearly distorted, or idiosyncratic movements, which dominate the clinical picture. Gross mannerisms, bizarre postures. Mutte, or almost mute, with only very occasional spontaneous movements.

**Onset date:**

**Offset date:**

### Frequency and Duration

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absent</td>
<td>Less than once a month</td>
<td>Once a month to once a week</td>
<td>Less than one hour per occasion</td>
<td>Once a month to twice a week</td>
<td>More than one hour per occasion OR 3 to 6 times a week</td>
<td>Less than one hour per occasion OR daily</td>
</tr>
</tbody>
</table>

### Pattern of Symptoms

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
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</table>

CAARMS: December 2006
7: General Psychopathology

7.1 Mania

NOTE: See also Dangerous Behaviour/Aggression, p. 22

- Would you describe your mood as 'high', or 'hyper' recently?

- Have you found yourself spending more money than usual or acting in ways you would not usually? (E.g. heightened sexual drive, reckless behaviour?)

- Have you felt that you are special in some way, or have special powers, or skills?
**MANIA - SEVERITY RATING SCALE**

<table>
<thead>
<tr>
<th>0</th>
<th>Never absent</th>
<th>1</th>
<th>Questionable</th>
<th>2</th>
<th>Mild</th>
<th>3</th>
<th>Moderate</th>
<th>4</th>
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<th>5</th>
<th>Severe</th>
<th>6</th>
<th>Extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No observed, or reported elevation in mood.</td>
<td></td>
<td>No change in self-opinion/energy.</td>
<td></td>
<td>Cheerful without much reason. Unaccountable feelings of well-being that persist or Mild lability in mood Evidence of over-confidence with no real reason - within normal limits &amp;/OR Some mild irritability</td>
<td></td>
<td>Reports excessive feelings of well-being, or cheerfulness without underlying reason Inappropriate to circumstances sometimes More marked level of excitement More prominent feelings of self-importance Overvalued ideas not delusional &amp;/OR Moderate irritability</td>
<td></td>
<td>More persistent feelings of optimism, happiness, or elevated mood Mood able to be shifted only with difficulty Subject aware of inappropriateness of feelings Behaviour may reflect the heightened mood Clear cut grandiosity/belief in special powers - not all the time More marked irritability evident/reported by others</td>
<td></td>
<td>Mood elevated and inappropriate most of the time Some delusional beliefs about own powers/abilities Highly distractable/loosening of associations Interview difficult Subject reports feeling elated, euphoric, marked increase in energy, restlessness Behaviour may be destructive-excessive spending of money/sexual activity etc Delusional beliefs of grandiosity/power Easily distractable, interview very difficult Subject obviously irritable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Onset date:**

**Offset date:**

**Frequency and Duration**

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
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CAARMS: December 2006
### 7.3 Suicidality and Self Harm

- Have you had any thoughts recently about harming or killing yourself? How often have you felt this way?
- Have you had any thoughts of what you would do to achieve this?
- Have you acted on those thoughts at all? What happened?

#### Suicidality - Severity Rating Scale

<table>
<thead>
<tr>
<th>0</th>
<th>1 Never, absent</th>
<th>2 Questionable</th>
<th>3 Mild</th>
<th>4 Moderately severe</th>
<th>5 Severe</th>
<th>6 Extreme</th>
</tr>
</thead>
</table>
| Not present. | Occasional thoughts of being tired of living. | Feeling of being better off dead. | Thoughts of suicide more frequent with associated plan. | Clear expression of wanting to kill self. | Specific plan and attempt. | Spec
| | Occasional thought of self-harm. | Suicidal thoughts, with only vague plan. | May be more seriously considering attempt with specific plan. | OR | OR | OR |
| | No suicidal thoughts, or plans. | Able to be distracted from thoughts with some effort. | Impulsive attempts using non-lethal method, or with knowledge of potential for being found. | OR | OR | Serious attempt that clearly could have been fatal. |
| | | OR | Minor actions of self-harm (slight scratches etc.). | | | |

**Onset date:** ____________  **Offset date:** ____________

#### Frequency and Duration

<table>
<thead>
<tr>
<th>0</th>
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CAARMS: December 2006
7.4 Mood Swings/Lability

- Have you experienced mood swings recently?
- Have you felt that your moods have been up and down for no apparent reason?

Mood Swings – Severity Rating Scale

<table>
<thead>
<tr>
<th>Never, absent (0)</th>
<th>Questionable (1)</th>
<th>Mild (2)</th>
<th>Moderate (3)</th>
<th>Moderately severe (4)</th>
<th>Severe (5)</th>
<th>Extreme (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No evidence, or reported mood swings.</td>
<td>Subject reports feeling mood changes more easily than usual. More marked changes in response to external events. Not noticed/report-ed by others.</td>
<td>Subject reports more extreme changes in mood. Feeling that mood is out of control some of the time.</td>
<td>More pervasive experience of mood swings. Noted by others. Distressing. Interferes with normal activities.</td>
<td>Mood swings experienced more days than not. Significant interference with normal activities.</td>
<td>Subject reports that mood changes constantly and completely out of control. Unable to maintain normal level of activity.</td>
<td></td>
</tr>
</tbody>
</table>

Onset date: ___________________  Offset date: ___________________

Frequency and Duration

<table>
<thead>
<tr>
<th>Absent</th>
<th>1</th>
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<th>4</th>
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<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than once a month</td>
<td>Once a month to twice a week</td>
<td>Once a month to twice a week – more than one hour per occasion OR 3 to 6 times a week – less than one hour per occasion</td>
<td>3 to 6 times a week – more than one hour per occasion OR daily – less than an hour per occ.</td>
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CAARMS: December 2006
## 7.7 Dissociative Symptoms

**Depersonalisation:**
Have you experienced yourself as being unreal, as if you were outside your own body?
Or that part of your body did not belong to you?

**Derealisation:**
*NOTE:* See also Nihilistic Ideas, p. 3
Have you had the feeling that things around you were unreal?

**Dissociative Memory Problems:**
*NOTE:* See also Cognitive Change, p. 9
Have you ever found yourself a long way from your usual range of travel without any memory of how you got there?
Were you under stress then?

### Dissociative Symptoms - Severity Rating Scale

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1 Questionable</th>
<th>2 Mild</th>
<th>3 Moderate</th>
<th>4 Moderately Severe</th>
<th>5 Severe</th>
<th>6 Extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>No reported feelings of depersonalisation/dissociation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild feeling of depersonalisation/derealisation. Not distressing, or distracting.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More marked dissociative experiences. Some concern expressed by subject about these, but not marked concern.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dissociative experiences associated with heightened concern/Distress about these experiences.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distress as a result of dissociative experiences. Interferes somewhat with usual activities (i.e. has to leave work/school/social situation).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feelings of depersonalisation/derealisation on extremely distressing. Feeling of extreme distance from others. Marked periods of time when subject not able to describe what they have been doing, where they have been etc.</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Onset date:** __________ **Offset date:** __________

### Frequency and Duration

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<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
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<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than once a month</td>
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</tr>
<tr>
<td>Once a month to twice a week – less than one hour per occasion</td>
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<td></td>
<td></td>
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<tr>
<td>Once a month to twice a week – more than one hour per occasion OR 3 to 6 times a week – less than one hour per occasion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 to 6 times a week – more than an hour per occasion OR daily – less than an hour per occ.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily – more than an hour per occ. OR several times a day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuous</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Pattern of Symptoms

<table>
<thead>
<tr>
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<tbody>
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</tbody>
</table>
Intrusions Interview with Additional Questions

APPRAISALS OF / COPING WITH PSYCHOTIC SYMPTOMS:

If Unusual Thought Content rated as Moderate (3) or above on the CAARMS:

Earlier you mentioned [endorsed unusual thought content], has your experience of this changed how you view yourself?
  • If so, how?

Has your experience of this changed how you view others?
  • If so, how?

Has your experience of this changed how you view the future?
  • If so, how?

Are there any coping strategies you use to manage [endorsed unusual thought content]?

If Non-Bizarre Ideas rated as Moderate (3) or above on the CAARMS:

Earlier you mentioned [endorsed non-bizarre idea], has your experience of this changed how you view yourself?
  • If so, how?

Has your experience of this changed how you view others?
  • If so, how?

Has your experience of this changed how you view the future?
  • If so, how?

Are there any coping strategies you use to manage [endorsed non-bizarre idea]?

If Perceptual Abnormalities rated as Moderate (3) or above on the CAARMS:

Earlier you mentioned [endorsed perceptual abnormality], has your experience of this changed how you view yourself?
  • If so, how?

Has your experience of this changed how you view others?
  • If so, how?

Has your experience of this changed how you view the future?
  • If so, how?

Are there any coping strategies you use to manage [endorsed perceptual abnormality]?

MEMORIES

1. In the last week have you had any particular memories from a particular episode or event in your past that keeps coming back into your mind? (If last week was exceptional then ask about a typical week).

YES/NO

(Prompts – When you were feeling the most depressed or memories of particular negative events)
2. What are the two most distressing memories?
(If more than 2 then inform the patient that we will just be concentrating on the two most distressing memories).

Memory 1 -
When did this episode happen? How old were you at the time of this memory?

Can you briefly describe the memory that you have?

- Please rate the vividness of the memory:
  - 0 (Hazy) – 100 (Most clear and vivid)
- Please rate the cohesiveness of the memory
  - 0 (Very fragmented/scattered) – 100 (Very cohesive/in correct order)
- When you have this memory, does it feel like it is not just a past event but is happening all over again right now?
  - 0 (Not at all) – 100 (Very much so)
- When you remember the event do you re-experience physical or emotional feelings the same as, or very similar to, those that were felt in the actual event?
  - 0 (Not at all) – 100 (Very much so)
- How much did the intrusive memory interfere with your daily life?
  - 0 (Not at all) – 100 (Severely)
- How distressing was your intrusive memory?
  - 0 (Not at all) – 100 (Completely)
- What are the emotions that you associate with this memory?
  - 0 (Not at all) – 100 (Very much so)
- How many times did you experience the intrusive memory in the last week?
- When you experience the intrusive memory on average how long does it last?

Memory 2 -
When did this episode happen? How old were you at the time of this memory?

Can you briefly describe the memory?

- Please rate the vividness of the memory:
  - 0 (Hazy) – 100 (Most clear and vivid)
- Please rate the cohesiveness of the memory
  - 0 (Very fragmented/scattered) – 100 (Very cohesive/in correct order)
- When you have this memory, does it feel like it is not just a past event but is happening all over again right now?
  - 0 (Not at all) – 100 (Very much so)
- When you remember the event do you re-experience physical or emotional feelings the same as, or very similar to, those that were felt in the actual event?
• How much did the intrusive memory interfere with your daily life?
  o 0 (Not at all) – 100 (Severely)
• How distressing was your intrusive memory?
  o 0 (Not at all) – 100 (Completely)
• What are the emotions that you associate with this memory?
  o 0 (Not at all) – 100 (Very much so)
• How many times did you experience the intrusive memory in the last week?
• When you experience the intrusive memory on average how long does it last?

Has your experience of intrusive memories changed how you view yourself?
• If so, how?
Has your experience of intrusive memories of this changed how you view others?
• If so, how?
Has your experience of intrusive memories of this changed how you view the future?
• If so, how?
Are there any coping strategies you use to manage your experience of intrusive memories?

IMAGES

1. In the last week have you had any other mental pictures or images that keep coming (spontaneously) to mind and usually involve the same kinds of things? (If last week was exceptional then ask about a typical week).
   YES/NO

2. What are the two most distressing images? (If more than 2 then inform the patient that we will just be concentrating on the two most distressing images).

Image 1 -
Can you briefly describe what you see in the image?

• Please rate the vividness of the memory:
  o 0 (Hazy) – 100 (Most clear and vivid)
• Do you experience physical sensations when you have this image?
  o 0 (Not at all) – 100 (Very much so)
• When you have this image, does it feel like it is not just a past event but is happening all over again right now?
  o 0 (Not at all) – 100 (Very much so)
• How much did the intrusive image interfere with your daily life?
  o 0 (Not at all) – 100 (Severely)
• How distressing was your intrusive image?
  o 0 (Not at all) – 100 (Completely)
• What are the emotions that you associate with this image?
  o 0 (Not at all) – 100 (Very much so)
• How many times did you experience the intrusive image in the last week?
• When you experience the intrusive image on average how long does it last?

**Image 2 –**

Can you briefly describe what you see in the image?

• Please rate the vividness of the memory:
  o 0 (Hazy) – 100 (Most clear and vivid)
• Do you experience physical sensations when you have this image?
  o 0 (Not at all) – 100 (Very much so)
• When you have this image, does it feel like it is not just a past event but is happening all over again right now?
  o 0 (Not at all) – 100 (Very much so)
• How much did the intrusive image interfere with your daily life?
  o 0 (Not at all) – 100 (Severely)
• How distressing was your intrusive image?
  o 0 (Not at all) – 100 (Completely)
• What are the emotions that you associate with this image?
  o 0 (Not at all) – 100 (Very much so)
• How many times did you experience the intrusive image in the last week?
• When you experience the intrusive image on average how long does it last?

Has your experience of these images changed how you view yourself?
• If so, how?
Has your experience of these images of this changed how you view others?
• If so, how?
Has your experience of these images of this changed how you view the future?
• If so, how?
Are there any coping strategies you use to manage your experience of intrusive images?

**THOUGHT STREAM**

Have you been aware in the past week of thoughts that keep coming spontaneously into your mind, giving you a similar message each time? Sometimes the thoughts may just comment, or give instructions, or say if something is good or bad. *(If last week was exceptional then ask about a typical week).*
(N.B. emphasise that this is perfectly normal and is not a sign of madness)

YES/NO

A) Do you experience any of this as like a ‘voice’ speaking to you?    YES/NO

*(N.B. From now on use ‘voice’ or ‘stream of thoughts’ or other term, depending on the way the respondent prefers to describe it).*

B) Is there just one ‘voice’ or are you aware of more than one? *(record the number of voices).*
C) What are the two most distressing voices?
(If more than 2 then inform the patient that we will just be concentrating on the two most distressing voices).

**Voice One -**
What kinds of things does this ‘voice’ say? *(record examples)*
OR What kind of spontaneous intrusive thoughts do you have?

Does the ‘voice’ use your name or refer to you as ‘I’, ‘you’ or ‘he/she’?

Is it the ‘voice’ of someone you know? If so, who?

- Does its messages tend to be the same or does it vary // Are your thoughts always the same or do they vary?
  - 0 (Always different) – 100 (Always the same)
- How much did the thoughts/voice interfere with your daily life?
  - 0 (Not at all) – 100 (Severely)
- How uncontrollable were the thoughts/voice in the last week?
  - 0 (Not at all) – 100 (Completely)
- How distressing were the thoughts/voice?
  - 0 (Not at all) – 100 (Completely)
- What adjectives would you use to describe the thoughts/voices?
  - 0 (Not at all) – 100 (Very much so)
- What are the emotions that you associate with this image?
  - 0 (Not at all) – 100 (Very much so)
- How many times did you experience the thoughts/voice in the past week?
- On the last few occasions you heard it, how long did the thoughts/voice speak to you on average?

**Voice 2 -**
What kinds of things does this ‘voice’ say? *(record examples)*
OR What kind of thoughts do you have?

Does the ‘voice’ use your name or refer to you as ‘I’, ‘you’ or ‘he/she’?

Is it the ‘voice’ of someone you know? *(If so, who?)*

- Does its messages tend to be the same or does it vary // Are your thoughts always the same or do they vary?
  - 0 (Always different) – 100 (Always the same)
- How much did the thoughts/voice interfere with your daily life?
  - 0 (Not at all) – 100 (Severely)
- How uncontrollable were the thoughts/voice in the last week?
  - 0 (Not at all) – 100 (Completely)
- How distressing were the thoughts/voice?
What adjectives would you use to describe the thoughts/voices?
- 0 (Not at all) – 100 (Very much so)

What are the emotions that you associate with this image?
- 0 (Not at all) – 100 (Very much so)

How many times did you experience the thoughts/voice in the past week?

On the last few occasions you heard it, how long did the thoughts/voice speak to you on average?

Has your experience of these voices/thoughts changed how you view yourself?
- If so, how?

Has your experience of these voices/thoughts of this changed how you view others?
- If so, how?

Has your experience of these voices/thoughts of this changed how you view the future?
- If so, how?

Are there any coping strategies you use to manage your experience of the voices/thoughts?

**CONNECTIONS:**

*If more than two endorsed [intrusion symptom] and/or more than two endorsed [perceptual abnormalities/unusual thought content/non-bizarre ideas on CAARMS], choose the two most distressing of each:*

You earlier mentioned [psychotic symptoms] and [intrusion symptoms] and do any of these appear related to each other?

Follow-up probes:
- In terms of content?
- In terms of meaning/themes?
- How/how not?

You endorsed [example items on the BCSS] which indicates a strong [positive-self/negative-self/positive-other/negative-other] belief. In what ways is this or is this not linked to the experiences just discussed and/or the connections between them?

*For each combination not identified by participant in previous question, ask: (Up to 4 combinations in total)*

Does the [intrusion 1, 2] we discussed earlier relate to [psychotic symptom 1, 2]?
- In terms of content?
- In terms of meaning/themes?
- How/how not?

You endorsed [example items on the BCSS] which indicates a strong [positive-self/negative-self/positive-other/negative-other] belief. In what ways is this or is this not linked to the experiences just discussed and/or the connections between them?

**NOTE FOR INTERVIEWER:**

Please note down any associations between trauma intrusions and psychotic experiences that you felt were relevant that the interviewee did not identify.

Were there any themes that appear connected that the interviewee did not connect?
Appendix G

Example Social Media Advertisement

Did you experience a difficult childhood?

Help others by advancing mental health research

As a thank you for taking part, you will be entered into a £50 prize draw.

Participation in future parts of the study will be paid.

✓ Complete online tasks from home
✓ Data anonymous and confidential
✓ Ethical approval from UCL
Appendix H

Information Sheet

LONDON'S GLOBAL UNIVERSITY
UCL Study ID: 17495/001
PIS Part B1, Version 2.1.1, 29 OCT 2020

Participant Information Sheet (PIS) For Adult Volunteers
UCL Research Ethics Committee Approval ID Number: 17495/001

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET

Title of Study:
IMPACT: Investigating the Mechanisms Underlying Psychosis Associated With Childhood Trauma, Part B1

Department:
Division of Psychiatry

Name and Contact Details of the Researcher(s):
Paul Jung (paul.jung.15@ucl.ac.uk)

Name and Contact Details of the Principal Researcher:
Dr. Michael Bloomfield (m.bloomfield@ucl.ac.uk)

1. Invitation Paragraph

Following your participation in the previous part of the IMPACT research project conducted at University College London, you are now invited to partake in Part B1 of this study. This project aims to investigate how childhood trauma can have different effects on the brain, in particular looking at how the brain recognises and responds to threats. The study will be spread over three sessions: the first session will involve a telephone/online interview, and the second and third will involve completing online tasks on your computer.

2. What is the project's purpose?

Childhood trauma has been found to increase the risk of psychosis, a mental health problem that causes people to interpret things differently from those around them. This might involve hallucinations, paranoia or delusions. By understanding how childhood traumas increases the risk of psychosis will improve detection and treatment of people who are most at risk. The project aims to test how experiencing childhood trauma affects the brain, behaviour and mental state in healthy adult volunteers. The project is expected to run for a year.

3. Why have I been chosen?

We are inviting people aged 18-40. All volunteers should be healthy and not receiving treatment for any mental health problem. Volunteers must also have good spoken English and basic literacy skills, as well as good vision, no colour blindness and no history of psychosis either personally or in their immediate family (i.e. mother, father, siblings). If you are pregnant or are planning on pregnancy, you will not be able to take part. If you are afraid of small closed spaces or loud noises you may not be suitable for this study.

4. Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep (and be asked to sign a consent form). You can withdraw at any time without giving a reason and without it affecting any benefits that you are entitled to. If you decide to withdraw you will be asked what you wish to happen to the data you have provided up that point.

5. What will happen to me if I take part?

The study will involve a telephone/online interview session, that lasts ~1.5h and two test sessions (1h each) which will involve completing online tasks. All volunteers must agree to not use any illicit drugs for seven days prior to each test day.
We request that you eat breakfast as you normally would, and only consume your typical caffeine intake in the morning prior to the test session. Please refrain from smoking tobacco in the morning prior to the test session. We ask that you refrain from drinking alcohol in the 24-hour period before the session. We suggest that you aim to have a good night’s sleep so that you are well rested for the testing sessions.

You will complete the two test sessions over two days. We will give you a call via telephone/online before the test session to ensure that the session runs smoothly. Each test session will last for roughly one hour. This will involve completing various psychological tasks online. Some of the tasks will involve hearing loud sounds that are mildly uncomfortable and seeing unpleasant images. Most people find the tests quite straightforward. You may experience brief feelings of stress during the study, but this is likely to be mild. If this concerns you, we recommend that you do not take part in this study.

6. Future Studies

There are three parts to the study, of which this is the second (Part B1). As part of part B, you will also be invited to our lab at University College London Bloomsbury Campus (Gower Street, King’s Cross, London, WC1E 6BS) to complete questionnaires about mood, some pen and paper/computer tasks. You will receive an email with further information about this part of the study.

You will also be asked whether you are happy to be contacted about participation in other parts of the study (Part A, if you have not completed it already, or Part C). Your participation in these future parts of the study is entirely voluntary. We will provide more information prior to taking part in future studies. Your participation in the present study will not be affected should you choose to be re-contacted or not at a later date.

7. What are the possible disadvantages and risks of taking part?

You may experience brief feelings of stress during the study, but this is likely to be mild. If you find it difficult to continue, we will stop the experiment as soon as you tell us.

You may find the loud sounds to be uncomfortable. We ensure that the sounds are calibrated (adjusted) appropriately before the task begins, to set the sound at a level that is mildly uncomfortable and not painful. Although some images you see will be unpleasant, they will have been particularly selected so that they are only mildly unpleasant. These images have been used in previous studies in people with trauma and have found it to be well tolerated by participants. Furthermore, the experiments will be stopped as soon as you tell us you are too uncomfortable to continue. Although some of our questions may ask you about bad things that may have happened to you in your childhood, they do not go into detail about what happened. However, revisiting any traumatic experiences has the potential to cause upset or anxiety. If you feel upset or anxious whilst completing the questionnaire, we recommend that you discuss your feelings with somebody you are close to, or a healthcare professional.

It is also important to recognise when we are struggling or not coping. If you feel that you are struggling, you can access professional help through your GP, at any A&E or in many other ways:

- Call the Samaritans on 116 123 for 24-hour support if you are feeling distressed, in despair or suicidal,
- You can also call the Victim Support team on 0808 1689 111 if you are struggling with abuse, or the National Association for People Abused in Childhood on 0808 801 0331 for support and guidance if you are an adult survivor of childhood abuse.

8. What are the possible benefits of taking part?

You will leave with the knowledge that you have contributed to our understanding of the effect of childhood trauma and further progress in medical and psychological research. There will also be a monetary incentive of
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LONDON’S GLOBAL UNIVERSITY
UCL Study ID: 17495/001
PIS Part B1, Version 2.1.1, 29 OCT 2020

£10.75/hour (approximately 4h, £43 in total), plus a maximum of a £5 bonus based on your performance on some of the tasks.

9. What if something goes wrong?

In the case of something going wrong in this research, whether it be a complaint regarding the treatment or something serious occurring during or following participation, please contact the supervisor of the study Dr. Michael Bloomfield (m.bloomfield@ucl.ac.uk).

10. Will my taking part in this project be kept confidential?

All the information that we collect about you during the course of the research will be kept strictly confidential. You will not be able to be identified in any ensuing reports or publications.

11. Limits to confidentiality

Confidentiality will be respected unless there are compelling and legitimate reasons for this to be breached. If this was the case we would inform you of any decisions that might limit your confidentiality.

12. Use of Deception

Research designs often require that the full intent of the study not be explained prior to participation. Although we have described the general nature of the tasks that you will be asked to perform, the full intent of the study will not be explained to you until after the completion of the study (at which point you may withdraw your data from the study).

13. What will happen to the results of the research project?

The results from this research will be presented at scientific meetings and will be published in scientific journals. These will be available on request, and you will not be identified as part of this research.

14. Local Data Protection Privacy Notice

Notice:
The controller for this project will be University College London (UCL). The UCL Data Protection Officer provides oversight of UCL activities involving the processing of personal data, and can be contacted at data-protection@ucl.ac.uk

This ‘local’ privacy notice sets out the information that applies to this particular study. Further information on how UCL uses participant information can be found in our ‘general’ privacy notice:

For participants in health and care research studies, click here

The information that is required to be provided to participants under data protection legislation (GDPR and DPA 2018) is provided across both the ‘local’ and ‘general’ privacy notices.

The lawful basis that will be used to process your personal data are: ‘Public task’ for personal data and ‘Research purposas’ for special category data.

Your personal data will be processed so long as it is required for the research project. If we are able to anonymise or pseudonymise the personal data you provide we will undertake this, and will endeavour to minimise the processing of personal data wherever possible.

If you are concerned about how your personal data is being processed, or if you would like to contact us about your rights, please contact UCL in the first instance at data-protection@ucl.ac.uk
15. Who is organising and funding the research?

This research is supported by UCL and the National Institute for Health Research University College London Biomedical Research Centre.

16. Contact for further information

If you have any further questions or queries regarding this research, do not hesitate to contact by email or phone.

Principal researcher:
Dr Michael Bloomfield (m.bloomfield@ucl.ac.uk)

Researchers:
Paul Jung (paul.jung.15@ucl.ac.uk)

UCL Data Protection Officer; Alexandra Poitls (data-protection@ucl.ac.uk)

You will be given a copy of the information sheet and a signed consent form.

Thank you for reading this information sheet and for considering to take part in this research study.

---------------------------------------------------------------------------------------------------
Appendix I

Consent Form

CONSENT FORM FOR ADULT PARTICIPANTS IN RESEARCH STUDIES

Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.

Title of Study: Investigating the Mechanisms underlying Psychosis Associated with Childhood Trauma
(IMPACT) – Part B1 Behavioural and Computer Tasks
Department: Division of Psychiatry
Name and Contact Details of the Researcher(s): Paul Jung (paul.jung.15@ucl.ac.uk)
Name and Contact Details of the Principal Researcher: Dr. Michael Bloomfield (m.bloomfield@ucl.ac.uk)
Name and Contact Details of the UCL Data Protection Officer: Alexandra Poletis (data.protection@ucl.ac.uk)
This study has been approved by the UCL Research Ethics Committee: Project ID number: 17495/001

Participant Identification Number for this trial: __________

Thank you for considering taking part in this research. The person organising the research must explain the project to you before you agree to take part. If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

I confirm that I understand that by ticking/initiating each box below I am consenting to this element of the study. I understand that it will be assumed that unficked/initiated boxes means that I DO NOT consent to that part of the study. I understand that by not giving consent for any one element that I may be deemed ineligible for the study.

Participant’s statement (click Yes or no):

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<th>Tick Box</th>
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<tr>
<td>1.</td>
<td>I confirm that I have read and understood the Information Sheet for the above study. I have had an opportunity to consider the information and what will be expected of me. I have also had the opportunity to ask questions which have been answered to my satisfaction.</td>
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| 2. | I agree to take part in the following activities as part of this study (please tick each of the following):  
- Online computer-based behavioural tasks ..............................................  
- Clinical assessments (including interviews and questionnaires) .......................... |   |
<p>| 3. | I consent to participate in the study. I understand that my personal information will be used for the purposes explained to me. I understand that according to data protection legislation, ‘public task’ will be the lawful basis for processing. I understand that according to data protection legislation, ‘research purposes’ will be the lawful basis for processing special category data. |   |
| 4. | I understand that all personal information will remain confidential and that all efforts will be made to ensure I cannot be identified. I understand that if the study researchers feel that I or others are at significant risk of harm, they may inform statutory bodies (e.g. doctors) of this. I understand that my data gathered in this study will be stored pseudonymously and securely. This means that your data will be given a unique code without your name or other identifiable information next to your data. It will be possible for researchers who have access to the code to link data to your name and other |   |</p>
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<td>5.</td>
<td>(If appropriate) If I have been recruited from an NHS site, I understand that relevant sections of my medical notes and data collected during the study, may be looked at by individuals from University College London, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research, I give permission for these individuals to have access to my records.</td>
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<tr>
<td>6.</td>
<td>I understand that my participation is voluntary and that I am free to withdraw at any time without giving a reason, without my medical care or legal rights being affected. I understand that if I decide to withdraw, any personal data I have provided up to that point will be deleted unless I agree otherwise.</td>
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<td>7.</td>
<td>I understand the potential risks of participating and the support that will be available to me should I become distressed during the course of the research.</td>
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<td>8.</td>
<td>I understand the direct/indirect benefits of participating.</td>
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<td>9.</td>
<td>I understand that the data will not be made available to any commercial organisations but is solely the responsibility of the researcher(s) undertaking this study.</td>
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<td>10.</td>
<td>I understand that I will not benefit financially from this study or from any possible outcome it may result in the future.</td>
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<td>11.</td>
<td>I understand that I will be compensated for the portion of time spent in the study.</td>
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<td>12.</td>
<td>I agree that my anonymised research data may be used by others for future research. No one will be able to identify you when this data is shared.</td>
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<td>13.</td>
<td>I understand that the information I have submitted will be published as a report and I wish to receive a copy of it.</td>
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<td>14.</td>
<td>I hereby confirm that I understand the inclusion criteria as detailed in the Information Sheet and explained to me by the researcher.</td>
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<td>15.</td>
<td>I hereby confirm that:</td>
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<td>(a) I understand the exclusion criteria as detailed in the Information Sheet and explained to me by the researcher; and</td>
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<td>(b) I do not fall under the exclusion criteria.</td>
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<td>16.</td>
<td>(If appropriate) I agree to my General Practitioner (GP) being informed of my participation in the study. I agree to my GP being involved in the study, including any necessary exchange of information about me between my GP and the research team; if any unexpected results are found in relation to my health.</td>
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<td>17.</td>
<td>I have informed the researcher of any other research in which I am currently involved or have been involved in during the past 12 months.</td>
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<td>18.</td>
<td>I am aware of who I should contact if I wish to lodge a complaint.</td>
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<td>19.</td>
<td>I understand that the information held and maintained by University College London may be used to help contact me or provide information about my health status.</td>
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<td>20.</td>
<td>I voluntarily agree to take part in this study.</td>
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If you would like your contact details to be retained so that you can be contacted in the future by UCL researchers who would like to invite you to participate in follow up studies to this project, or in future studies of a similar nature, please tick the appropriate box below.

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<td>Yes, I would be happy to be contacted in this way</td>
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<td>No, I would not like to be contacted</td>
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Appendix J
Debrief Information Sheet

LONDON'S GLOBAL UNIVERSITY
UCL Study ID: 17495/001
Debrief Part B1.1, Version 1.1.1, 29 OCT 2020

Participant Debrief Information Sheet For Adult Volunteers
UCL Research Ethics Committee Approval ID Number: 17495/001

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET

Title of Study:
IMPACT: Investigating the Mechanisms Underlying Psychosis Associated With Childhood Trauma, Part B1

Department:
Division of Psychiatry

Name and Contact Details of the Researcher(s):
Paul Jung (paul.jung.19@ucl.ac.uk)

Name and Contact Details of the Principal Researcher:
Dr. Michael Bloomfield (m.bloomfield@ucl.ac.uk)

1. Thank you for your participation

Thank you for your participation in the first session of part B1 of the IMPACT study. This project aims to investigate how childhood trauma can have different effects on the brain. Your participation contributes to our understanding of the effect of childhood trauma and furthers medical and psychological research.

The interviews we undertook today were designed to investigate symptoms commonly associated with psychosis and post-traumatic stress disorder (PTSD) and to see if there were any connections between those symptoms. The presence or absence of any symptoms does not indicate or imply the presence of psychosis or PTSD, but if you are concerned by anything discussed today, please contact the services listed in this document.

2. What is the project’s purpose?

Childhood trauma has been found to increase the risk of psychosis, a mental health problem that causes people to interpret things differently from those around them. This might involve hallucinations, paranoia or delusions. By understanding how childhood trauma increases the risk of psychosis will improve detection and treatment of people who are most at risk. The project aims to test how experiencing childhood trauma affects the brain, behaviour and mental state in healthy adult volunteers. The project is expected to run for a year.

3. Next session

This session was the first out of three sessions. The next session will involve completing online tasks. You will have received a date and time for the next session. Please contact us if you are unsure about when this is.

We request that you eat breakfast as you normally would, and only consume your typical caffeine intake in the morning prior to the test session. Please refrain from smoking tobacco in the morning prior to the test session. We ask that you refrain from drinking alcohol in the 24-hour period before the session. We suggest that you aim to have a good night’s sleep so that you are well rested for the testing sessions.

You will need to use a computer to complete the test sessions instead of a phone/tablet/touchscreen device. You will need to have a stable internet connection and charging supply and needs to be completed in a setting with as few distractions as possible. You will also need to be using wired headphones.

4. Future studies

1
You will later also be invited to our lab at University College London Bloomsbury Campus (Gower Street, King’s Cross, London, WC1E 6BS) to complete questionnaires about mood, some pen and paper/computer tasks. You will receive an email with further information about this part of the study.

If you have consented, you will also be contacted about participating in Part C of the IMPACT research project. Participation in any future part of the study will be paid. We will provide more information prior to taking part in future studies and you are free to decline to take part. Your participation in the present study will not be affected should you choose not to take part at a later date.

5. Sources of Support

Speaking about difficult experiences has the potential to cause upset or anxiety. If you have been affected by your participation in the research project today, please see below for a list of services that are available to support you:

- Call the Samaritans on 116 123 for 24-hour support if you are feeling distressed, in despair or suicidal,
- Call the Victim Support team (0808 1689 111) if you are struggling with abuse
- Call the National Association for People Abused in Childhood (0808 801 0331) for support and guidance if you are an adult survivor of childhood abuse.
- Call Mind (0300 123 3333) for information and signposting to appropriate services
- Contact your GP
- Attend A&E if you feel at risk of harming yourself

6. Reimbursement

For participating in the study, you will receive £10.75/hour (approximately 4h, £43 in total), plus a maximum of a £5 bonus based on your performance on some of the tasks. We will provide you with a form to complete, including your bank details for payment, and should receive the money in your account within 3-5 working days.

7. What if something goes wrong?

If something went wrong this research, whether it be a complaint regarding the treatment or something serious occurring during or following participation, please contact the supervisor of the study Dr. Michael Bloomfield (m.bloomfield@ucl.ac.uk).

8. Will my taking part in this project be kept confidential?

All the information that we collect about you during the course of the research will be kept strictly confidential. You will not be able to be identified in any ensuing reports or publications.

9. Limits to confidentiality

Confidentiality will be respected unless there are compelling and legitimate reasons for this to be breached. If this was the case we would inform you of any decisions that might limit your confidentiality.

10. What will happen to the results of the research project?

The results from this research will be presented at scientific meetings and will be published in scientific journals. These will be available on request, and you will not be identified as part of this research.
11. Local Data Protection Privacy Notice

Notice:
The controller for this project will be University College London (UCL). The UCL Data Protection Officer provides oversight of UCL activities involving the processing of personal data, and can be contacted at data-protection@ucl.ac.uk

This 'local' privacy notice sets out the information that applies to this particular study. Further information on how UCL uses participant information can be found in our 'general' privacy notice:

For participants in health and care research studies, click here

The information that is required to be provided to participants under data protection legislation (GDPR and DPA 2018) is provided across both the 'local' and 'general' privacy notices.

The lawful basis that will be used to process your personal data are: 'Public task' for personal data and 'Research purposes' for special category data.

Your personal data will be processed so long as it is required for the research project. If we are able to anonymise or pseudonymise the personal data you provide we will undertake this, and will endeavour to minimise the processing of personal data wherever possible.

If you are concerned about how your personal data is being processed, or if you would like to contact us about your rights, please contact UCL in the first instance at data-protection@ucl.ac.uk

12. Who is organising and funding the research?

This research is supported by UCL and the National Institute for Health Research University College London Biomedical Research Centre.

13. Contact for further information

If you have any further questions or queries regarding this research, do not hesitate to contact by email or phone.

Principal researcher:
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Pau]. Jung (paul.jung.15@ucl.ac.uk)

UCL Data Protection Officer: Alexandra Potts (data-protection@ucl.ac.uk)

You will be given a copy of the information sheet and a signed consent form.

Thank you for reading this Participant Debrief Information Sheet and for taking part in this research study.
Appendix K
Example Interview with P5

Interviewer
Have you had the feeling recently there's something odd is going on that you can't explain?

P5
No.

Interviewer
Okay, do you ever feel puzzled by anything?

P5
That's quite a vague question [laughs]. Have I ever... recently have I felt puzzled by something?

Interviewer
Yeah, I think it's more kind of getting at the idea that generally, you're just feeling a bit kind of puzzled and befuddled at the moment in your life?

P5
I don't know, it's such a vague... sorry, I don't know how to answer that.

Interviewer
I mean, you know, maybe it's the case that you don't really feel you've been feeling puzzled recently. Which is fine.

P5
Apart from this question [laughs]! Not really. Okay.

Interviewer
Would you say that familiar surroundings ever feel strange?

P5
No.

Interviewer
Do you feel that the world in general or other people in your life have changed in some kind of way that you can't quite put your finger on?

P5
No.

Interviewer
Okay. Have you felt recently that things that were happening around you had a special meaning or that people were trying to give you messages?

P5
No.

Interviewer
Have you felt that someone or something outside of yourself has been controlling your thoughts, feelings, actions or urges?

P5
No.

Interviewer
Have you had any feelings or impulses that don't seem to come from yourself?

P5
No.

Interviewer
Do you ever get any strange sensations in your body that you can't explain?

P5
No. Muscle twitches but but, you know, explainable.

Interviewer
Explainable. Have you felt that ideas or thoughts that are not your own have been put into your head?

P5
No.

Interviewer
Have you ever thought that ideas or thoughts have been taken out of your head?

P5
No.

Interviewer
Have you ever felt that your thoughts have been broadcast so that other people might know what you're thinking?

P5
Like, briefly for a split second and like a form of paranoia, but only very fleeting [laughs]?

Interviewer
Okay. I mean, is that is that something that that happens kind of, you know, frequently or regularly? Or is it just something has happened once or twice?

P5
I wouldn't say that regularly. But relatively regularly. If that makes any sense.

Interviewer
Yeah, yeah. So when that happens to you for those split seconds, is that -

P5
It's like the thought enters my mind. But then logic just says, "Stop being stupid."

Interviewer
Okay, so you're able to kind of dispel that paranoia, as you put it. And is that feeling that people might be able to pick up, almost, or have a sense of what you're thinking? Or is that more thinking that people can sort of literally hear your thoughts almost by telepathy?

P5
It's more a fear that they would know. But obviously, the logical dismantling of it would obviously be that there's no literal way that they could. So it goes quite quick, you know. Although the thought does arise and is quite unnerving, it's quite easily dispelled, because it's completely illogical, and, you know, it's not even unlikely - it's just, you know, implausible.

Interviewer
So it's very brief, and you're able to, you know, to dispel it really quickly.

P5
Yeah.

Interviewer
Do you have a sense of, I mean, how long has that been going on for you that you've had that kind of paranoia, as you put it, how long has that been coming up?

P5
Since a child.

Interviewer
Would you be able to give me... like, it's hard to kind of give me a specific date, but would you be able to give a year, or something, the best guess, maybe.

P5
About six years old.

Interviewer
How old are you now?
I am 32? Yeah.

Interviewer
I'll do some math later on and figure out what year that was.

It would have been 1994, ish.

Interviewer
1994, thanks, you've saved me a job. And how distressing is it when that happens from nought to 100. So nought being, it doesn't bother me at all. And 100 being, you know, it's extremely distressing.

Normally, it only happens when I am distressed. So if I wasn't distressed, I wouldn't get it. So I wouldn't necessarily say it was - well, it is quite distressing to think that, but I'm probably already distressed when the idea pops into my head, so.

Interviewer
Yeah, so is it hard to kind of separate how distressing that is, in particular?

Um, I think for the... it is quite distressing. But it's quite easy to get rid of.

Interviewer
Yeah. Yeah. So I know, it might be hard to give it a number, but if you were to give it a number from nought to 100, about how distressing that thought or feeling that other people might be able to know what you're thinking is, what number would you give it?

It'd be quite high. But because it's so, because, you know, because if it was true, it would be terrifying, but it's not. You know, so I don't want to make it too high. 70. But then, as I say, because it's only ever a very fleeting thought.

So would you say that anybody has been giving you a hard time or been trying to hurt you?

Recently, no.

Do you feel that people have been talking about you, laughing at you or watching you?

It's quite distressing. But it's quite easy to get rid of.
Um, no, not recently. Um, I find it very stressful if I go [laughs], if I, if I go into a shop, by myself, or if I'm out in public with lots of people around, I get paranoid completely illogically, I feel extremely uncomfortable and want to leave the situation. But, as I leave the house once a week to go shopping under lockdown [laughs], I technically haven't had that in a long time. I'm fine going food shopping, to a food shop, but going into a non food shop, like Waterstones or like a - I start getting paranoid, I don't know... logically, I don't know what I'm scared of. I just feel... like I'm somewhere I shouldn't be [laughs]. But I can't logically say what I fear but I get very nervous. and paranoid. But if I have something that's very important that I have to do or if I'm with someone else, it's completely gone.

**Interviewer**

Okay. Would you say in those situations, you, I suppose, you're worried that people might perceive you negatively or be thinking negative things about you generally? Or is it more worried that specifically people are kind of speaking about you laughing about you?

**P5**

[unintelligible] perceive me negatively. Like if I was in town, and I needed to get food for my kids, I could easily go in. You know, like they wanted anything like sausage rolls, McDonald's, anything, I would go and get them. But if I was by myself, I would rather starve for 48 hours, then go in and buy just a sausage roll for myself, you know, as simple as that. I don't, I don't know what the fear is though. I can't...

**Interviewer**

Do you have any specific predictions about what people might be thinking of you?

**P5**

No, I don't know. It's illogical, but -

**Interviewer**

Is it something negative? Not -

**P5**

It is negative, I don't, I don't know if it's like a feeling of inadequacy. But I - it's not logical. I can't... it's, it's like a fear response that... if I'm by myself, it seems that I can't. I am struggling to find the right word. Like they are... when I'm by myself, it's like that they're the predators and I'm prey, but if I am with my kids or with someone else or doing something for someone else, that illogical feeling just goes. But if I'm by myself doing stuff for myself... calling them predators, it, that's the wrong word... hostile. Other people seem hostile. In those situations, even though they're not, and obviously, logically, they're not, I'm you know, six foot, quite big, I'm not... but that's how I feel.

**Interviewer**

Okay, thank you for that information. The next question is, have you been feeling that you're especially important in some way or you have special powers to do things that other people can't?
P5
Um, as a teenager, I used to illogically think that, but would try and snap myself out of it [laughs], you know, I mean, I've always been -

Interviewer
What were you thinking as a teenager, about that?

P5
Well, I always felt different. It's like everyone else, everyone else is... counting 123, and I was doing ABC. Like, I didn't fit in. But... it didn't, I was in top sets and everything at school, so it didn't help. But I mean, logically, I'm just a normal person [laughs]. I don't know if it's arrogance.

Interviewer
So you haven't really felt that that you're special or important, especially important recently?

P5
I know that I'm quite different. But I wouldn't say it was special [laughs], in a positive sense, at least.

Interviewer
Have you had the feeling that something odd is going on with your body that you can't explain?

P5
No.

Interviewer
Do you feel that you deserve punishment for anything you've done wrong?

P5
No.

Interviewer
Have you ever felt that you are a part of you did not exist or was dead?

P5
I don't think so.

Interviewer
Have you ever felt that the world itself does not exist?

P5
No.
Interviewer
Are you... would you say you're a religious person?

P5
I was raised in a very fundamentalist religious household as Mennonites, Quakers, but I am, I am very firm atheist.

Interviewer
Have you had any religious experiences?

P5
Um, yeah, but, you know, it's obviously say they were all, I'd say, self or group induced delusion, but [laughs].

Interviewer
So no kind of religious experiences recently? Okay. Would you say that anybody is in love with you?

P5
Apart from my pets and my kids [laughs].

Interviewer
Okay. So I mean thinking about the, you know, you were speaking a bit about, kind of feeling a bit on edge, a bit paranoid in situations with lots of people. And how long have you felt like that?

P5
Since a child.

Interviewer
Is that the same as before, like 94-ish?

P5
Yeah.

Interviewer
Yeah. And how often do you feel like that at the moment? Is it kind of every day, or less or more?

P5
Um, whenever I'm in crowded situations, or meeting new people, which isn't that common, because I live in a very small village in the mountains in North Wales [laughs]. And it's mostly during lockdown. So, um, on a weekly basis. Yeah, but I can go weeks without seeing anyone outside of my family.

Interviewer
And how distressing is it from from nought to 100?
P5
It can vary from... it can vary from mild to extreme, depending on, I don't know, how I am emotionally at the time, and the actual situation. So it could just be very, very mild... uncomfortable feeling to being unbearable. When it's really bad, I get... my whole body gets itchy, really uncomfortably itchy. And then my face goes red, my, all my skin goes, my arms, my hands go red. Yes, for several hours [laughs]. And it's really uncomfortable itching all over [unintelligible] physical, but the actual... that would be on an uncomfortable level, it'd be like 90 or something.

Interviewer
Okay, so it can go up to 90. I mean, yeah, that sounds really, really unpleasant. So it's not surprising that you might want to avoid it if that's what you experience when it happens. The next set of questions are about changes in your senses. So kinds of visual changes or things you might hear, in your sense of taste, and touch and all of these sorts of things. So in terms of your vision, recently, have there been any changes in your vision? So I'm talking about kind of literally kind of your sense of sight. Has there been any changes, in terms of when you're looking at things like objects might change in colour or shape or size? They might seem to move in some kind of way, without any kind of distortions in your vision?

P5
No.

Interviewer
Do you ever have visions or see things that aren't really there?

P5
I used to quite a lot as a teenager. When I get extremely stressed, I can see things that are not there. But even though they look 100% real, you know, I know they're not real, at the same time. I don't know how I know that they're not real. I just know, "This is not real".

Interviewer
This was when you were a teenager?

P5
It used to happen quite a lot as a teenager. The last the last time it probably happened, I'd probably be in my early 20s.,

Interviewer
Okay, and what kind of things would you -

P5
It's nonsensical stuff, like I remember being in a maths class and seeing two dogs run into the class and then run out. I knew it, I knew it wasn't happening when I saw it [laughs]. But it wasn't like it was like, cartoon or, you know, like, but I just knew it wasn't happening [laughs].
Interviewer
Okay. And what about in terms of your hearing, has there been any changes in the way that things sound to you?

P5
No.

Interviewer
Do you ever hear things that aren't really there?

P5
Yes. Again, mainly as a teenager. But this one's much more common than seeing stuff that isn't there. I will often, sometimes hear someone calling my name, hear the door knock, hear the phone ring, or hear - God it sounds really - the sounds of an eagle caw? But I know it's not - or a pigeon or a dove cawing. Right, bird sounds, don't ask me why.

Interviewer
And this is something that has happened more recently as well?

P5
Um, so the probably the last time that happened was a few weeks ago. But again, it's just... if I'm stressed, it, you know, like, the more stressed I am, the more likely I am to... now again, I know, when I hear it that, even though it sounds 100% real, like it's happening, I know it's in my head and I know it's... I don't know how. Now, obviously, you're not going to hear eagles cawing at two o'clock in the morning, but [laughs] or, you know, even a pigeon flapping, but even if it was outside where you could possibly hear a buzzard or something call, there's something... I know, it's just stress, and I can't put a finger on it.

Interviewer
So you're aware that it's not real, it's not actually happening at the time?

P5
Yeah.

Interviewer
Okay. And you notice it kind of when you're feeling quite stressed or overwhelmed?

P5
Mm-hmm.

Interviewer
Okay. And what about your sense of smell? Does your sense of smell recently seem to have changed any kind of way, more or less intense than usual?

P5
Not at all.
Interviewer
Okay. And do you ever smell things that other people don't seem to smell?

P5
No.

Interviewer
Okay. And what about your sense of taste? Had that seemed to change recently?

P5
No.

Interviewer
And do you ever get odd tastes in your mouth, taste things that you can't explain?

P5
No.

Interviewer
Okay, and what about your sense of touch? Do you ever get strange feelings on or just beneath your skin?

P5
Um, no, apart, as I say, apart from the itching, and feeling, you know, but I don't know if it counts? No.

Interviewer
I mean, what's your explanation for the itching?

P5
What's my explanation?

Interviewer
Yeah, I mean, do you have an idea of what it is is it like a medical thing or?

P5
I'm probably misusing the term psychosomatic, just, and I want, you know, I'm that stressed and want to leave the secure situation that... I don't know.

Interviewer
And do you ever get strange feelings in your body other than that, so kind of more feeling that, you know, parts of your body have changed in some kind of way or that things are working differently than they should be or have been before?

P5
Like a kind of body dysmorphia? No.
Interviewer
Okay. And I suppose, thinking about when you might hear those noises of maybe your name called or the bird noises. You said it last happened a couple of weeks ago, right? So how regularly might that happen on average?

P5
Monthly.

Interviewer
And when did that start happening?

P5
Again, around six, seven.

Interviewer
Okay, and how distressing is it when it happens from nought to 100? Just the number is fine.

P5
Quite high. Like 80, 85 because I know, I know it's not real. And it's very disconcerting, very upsetting to know, it's not real. The fact you know, that you're hearing things and knowing that they're not there. Um, so about 80 to 85.

Interviewer
Okay. And have you noticed recently, any difficulties with your speech or ability to communicate with other people?

P5
Yeah [laughs].

P5
I, I stutter a lot. When nervous. My mind goes blank, I find it very difficult to talk often [laughs], or to express my opinion or whatnot [laughs].

Interviewer
So when you're nervous, you kind of noticed that your ability to kind of speak as maybe fluidly as you would like, is impacted.

P5
Yes.

Interviewer
Do you ever find yourself going off on tangents and not really getting to the point?

P5
I'm always going off on tangents.
Interviewer
Is that a recent thing for you, or is that sort of been going on for a while?

P5
I've always... [laughs]

Interviewer
Would you say that you feel that other people have difficulty understanding what you're trying to say?

P5
Um, not necessary, but I often get very frustrated that they misinterpret or put words in - I, I'm normally quite pedantic on what I say [laughs]. I tend not to speak much, but obviously I've been babbling for this interview. But I, I find it very annoying when people often misinterpret what I've said [laughs].

Interviewer
Yeah, I think that is, that can be quite frustrating sometimes. So you said it's been something that's been going on for you for a while - is it again, since you're a child that same kind of time that it started?

P5
Oh, yeah.

Interviewer
And, and is that a constant thing for you? Is it kind of every day that you feel like this? You know -

P5
No. I, I get better at talking with close friends, family, but with most people.

Interviewer
Okay. So how often does this kind of come up for you as a problem, would you say?

P5
Weekly? Yeah [laughs]. Absolutely paranoid that the the cashier at the till at the fruit shop will try and talk to me [laughs].

Interviewer
I know the feeling, sometimes you just want to get out of there - "Don't bother me!". And how distressing is that from nought to 100 for you?

P5
It's not that distressing because it, I'm used to it. Quite low, 20?
And any of the things that we've spoken about so far in the interview, do any of them relate to alcohol or drug use?

P5
I'm teetotal. And the only drugs I've ever taken are like paracetamol, ibuprofen, so.

**UNTRANSCRIBED**

Interviewer
Changing track again, a little bit, have you recently experienced yourself as being unreal?

P5
No.

Interviewer
Or as if you're outside of your own body?

P5
No.

Interviewer
Or, that part of your body didn't belong to you?

Interviewer
Or get the feeling that things around you were not real?

P5
No.

Interviewer
Okay.

**UNTRANSCRIBED**

Interviewer
Okay. All right. So earlier you mentioned feeling a bit paranoid in situations with other people, maybe even kind of finding them a bit hostile. I'm wondering if your experience of that has had any impact on how you view yourself?

P5
I am... I have... it's like, in my head, I'm still a six year old, seven year old boy. I don't know -that could be misinterpreted in many different ways [laughs]. It's like I'm still as vulnerable. I feel as vulnerable - I'm not though. You know, I'm, as I say... I've said this quite a lot, fortunately, I was in the secondary school, I hit puberty much earlier. So for the first like four or five years of secondary school, I was the second tallest in the year and the tallest person was a close friend. So I think that saved me from a lot of bullying [laughs] because I would have been very easy to target. But I
still feel vulnerable, even though I'm not. But I think if - obviously I know this isn't therapy - but if the threat seems more sexual, it's more terrifying. As two examples, that pot wash job I had as a teenager, when I was about 17, they had a bunch of teachers there, and they were having like a buffet and it was late. So I was the only one left there, and one of the teachers, she was very beautiful. She flirted with me. And I locked myself in the kitchen, and cried in the corner for about two hours before I could carry on doing anything else. She was very beautiful, she didn't do anything threatening, but I felt... I panicked. When I was about 21, 22, I was walking through town to get to my car, and there were two women, one pushing a baby in a buggy, and they wolf whistled at me. I got straight to the car, and I had to sit down in the car, and... I can't remember if I did cry, but I felt like crying. But I couldn't drive for about an hour because I was that panicking and nervous. I just couldn't, you know, I couldn't function. But like the two girls who wolf whistled, they were, as I say, I probably weigh way more than both of them combined [laughs] there was no, you know, genuine threat, but I had the panic response.

**Interviewer**
And again, that experience of, you know, feeling worried or an edge around other people has that had an impact on how you view other people?

**P5**
In what way?

**Interviewer**
I just wonder if, I suppose, feeling worried about other people and feeling that they might be hostile... has it had any impact on your feelings generally about other people?

**P5**
It's bound to in some way, but it's just normal for me so I don't know [laughs]!

**Interviewer**
So you mean, when you say it's... I guess there's an obvious implication of you know, if you feel that people are hostile, you're going to feel that people are hostile. I guess that's an obvious one. Maybe that's the answer to that question. I don't know if there's anything else you would say on that.

**P5**
I don't genuinely think they're going to be hostile to... I don't know. I, I act - my body panics as though they are, even though I know that they're not going to. But yeah. So it will affect in some way even though I know it shouldn't.

**Interviewer**
Okay, and what about how you see your future? Does this kind of you know, worries and paranoia around other people, has it had an impact on how you see your future?

**P5**
Not to my knowledge.

**Interviewer**
Okay, that hasn't made you feel any more or less hopeful about, you know, your life ahead, just hasn't had much impact.

**P5**
It's just normal life for me, so I don't...

**Interviewer**
Okay. And you also mentioned sometimes infrequently hearing things that aren't there. Has that had an impact on how you view yourself?

**P5**
Hopefully not as much as it should [laughs]. It'll be undeniable that it does affect how you think because you can't trust your senses. You can't, you know, you're aware that this is not normal. This is not healthy. But it's, but it's so normal to me that I think I am quite accepting of it in my own weird way.

**Interviewer**
I mean, that sounds healthy, really, you know. I don't know how helpful it would be really, for us to be constantly questioning ourselves like that. So I don't think there's anything wrong with that at all. And would you say that that experience has had any impact on how you view other people?

**P5**
Don't think so. Pedantically, everything affects everything [laughs]. But I don't think drastically No.

**Interviewer**
Okay, and what about how you view your future? The fact that you kind of might occasionally hear these things, has it had any impact on how you view your future?

**P5**
It doesn't enter my thoughts about my future.

**Interviewer**
Okay, brilliant. The next set of questions are going to be about memories. Okay. So for some people, these questions might be particularly painful or difficult. And, you know, if you don't want to delve into anything, or you don't want to talk anymore on a particular memory or what have you, then that's absolutely fine. Don't feel obligated to do so. And equally, don't feel obligated to give me a memory if there isn't one. So don't feel obligated to do anything and don't feel obligated to go into detail if you don't want to. In the last week, have you had any particular memories for a particular episode or event in your past that's kept coming back into your mind?

**P5**
No, not that I can remember.
Interviewer
Okay. And what about images? In the last week have you had any mental pictures or images that have kept coming spontaneously to your mind?

P5
No, not in the past week [laughs].

Interviewer
Is there something recently, but not in the last week? Or is this kind of years and years?

P5
This is one of the things with my memory, I will find it very difficult to give you an accurate answer because I will forget about it quite easily.

Interviewer
I mean, was there something - you said not in last week, so I'm wondering if there was something that that came into your mind that you thought of as an image?

P5
I think it was the week after Christmas. So between the 27th onwards for about a week, every single night, was having very bad dreams slash memories, as I say, for about seven days.

Interviewer
So there were dreams of things that happened to you in the past.

P5
Yeah.

Interviewer
And would memory have kind of played on your mind a bit throughout the day?

P5
All day [laughs] for the week.

Interviewer
Would you be able to describe the memory to me?

P5
I can if you really want me to.

Interviewer
I mean, yeah, you don't have to give loads and loads of detail, just kind of how old you were and -
P5
Just being - between the ages of six and seven, and being repeatedly raped [laughs]. To put it bluntly. But when you wake up, it's completely - like it, like it had just happened, it's fresh, and you - like the, the wound has been reopened or the trauma, you know, it's... so for the whole day you feel incapable of doing anything, you don't want to do anything. You don't want to remember, you don't want to do anything. Just not particularly happy.

Interviewer
Of course, I mean, these memories, they are incredibly painful. And of course, it's going to have such a huge impact on how you're going to feel throughout the day, your mood, your motivation, as you're saying. Um, you said that you had a period, I suppose, did you say just after Christmas, where it was kind of coming into your mind a lot? So would you say typically, these memories of that time don't typically come into your mind?

P5
No, unless, unless triggered, or sometimes just randomly [laughs]? It's not something I really like to dwell on.

Interviewer
Of course, so when it does come to your mind, you just try and get rid of it, basically.

P5
Um, sometimes, but it's, like, you know, if I'm happy, it's very easy to just move on. But then if you're feeling depressed, it's just like a cycle.

Interviewer
So I mean, how often would you say on average that a memory like that does come into your mind?

P5
I, I find it very difficult to give a accurate response because I'm... I can say definitely, like, the week after Christmas, I got it because it was recent. But before that, I honestly can't remember the last time it happened. But it - um, like, the dreams, having dreams that are very disturbing, and will completely blindside me for at least the rest of the day. I'm getting those at least once a month. But I can have them fortnightly, I can have them... as I say I had a period where I was having them every day for a week. But it's something that I will soon forget the details of, so I find it... yeah, I can't...

Interviewer
I'm going to ask you a series of like nought to 100 questions about that memory. I know from how you're describing the memory to me, it might be hard to give a specific number. And so, I guess just try not to worry too much about it being kind of the perfect most representative number. These things are never going to be exact. So just kind of give me your best... the best number you can suppose. How vivid
would you say that memory is from nought to 100. So nought is like, it's really hazy and unclear. And 100 is it's really, really clear and really vivid.

P5
The dream or the memory?

Interviewer
The memory, I guess, yeah.

P5
Um, so from the age of about six, for about a year and a half, I was raped, anally raped nearly every other day. And the very first time it happened, I can remember the hours or so leading up to it. And I can remember afterwards. I cannot remember what happened at all. It is that... I, I know it was bad. But I can't remember, you know, my mind completely blanks for that time. But then obviously, it happened so frequently afterwards that I can remember those times... certain times, particularly worse than others, very vividly. But it happened so often that I have a lot of memories of it.

P5
So how vivid is the memory? Very [laughs]. As I said, it's like mentally being back there. Although, but you know, sometimes, I can just have a fleeting memory, and it's not that bad. But other times, it's like, I'm back there. And my body's panicking. And, you know, all that... whatever response.

Interviewer
Yeah, yeah. Fight or Flight response?

P5
Yeah.

Interviewer
Yeah. So yeah, I mean, from what you're describing, it varies, it changes. I know, it's really hard to just put one number on how vivid the memories are, but -

P5
Obviously, most of the time, it's very vivid, and it's very negative. So I would have it up there with the 95 to 100. But as I say, it's not exactly a nice memory. But you know, obviously I'm talking to you and thinking about it. And so I keep on getting brief... obviously, it's like circling in the back of my head. But now it's, you know, I'm in quite a good space and I'm, you know, I can just talk about it.

Interviewer
Are you okay for me to ask questions about the memory?

P5
No, I'm happy to discuss it now. Obviously, I know if I didn't want to talk about it, I can not. So I'm choosing to.
Interviewer
Yeah. I mean, just for these next few questions, you know, if it's any easier, all I really need is just a number. So you don't have to give me any more details or descriptions of how it feels or your experience of it. If it's any easier, I honestly really just need the number from you. I mean, how cohesive does the memory seems so this scale is: nought means it's really fragmented and scattered, you know, it's in bits and pieces here and there. 100 is, it's very cohesive, you can almost replay it chronologically from start to finish, sort of in the correct order. What number would you put on that?

P5
Again, 95 to 99? Almost, you know -

Interviewer
And you mentioned this a minute ago, but when you have the memory does it feel like it's not just a past event, but it's happening all over again, right now. So this is a nought to 100 scale as well. So nought, it doesn't feel like that at all, definitely feels 100% like a memory in the past. 100: very much feels 100% like it's happening all over again right now.

P5
It's, like 99 to 100 although, you know, obviously, logically, I know, but it's - body's reacting as though it's happening, or just happened, or...

Interviewer
Yeah, this is a similar similar question, then. I mean, when you remember the event, do you reexperience physical or emotional feelings the same as or similar to those in the actual event? Nought -

P5
Yeah [laughs]. 99, 100

Interviewer
Okay, and from nought to 100 how much would you say that this memory interferes with your daily life? Nought, not at all, 100, very severely.

P5
When I have the memories and dreams... 100.

Interviewer
And how distressing is that memory from nought to 100?

P5
99 to 100?

Interviewer
And what are some emotions that you associate with that memory?
P5
If I can put words to them. Fear... and pain.

Interviewer
Fear and pain, and so from nought to 100, how intense that fear feeling?

P5
100.

Interviewer
And pain?

P5
90.

Interviewer
And when the memory does come into your mind, how long does it hang around for?

P5
Hours, at least.

Interviewer
Okay, yeah, you spoke a bit about how it can have a huge impact on your day and your functioning. Thank you for answering questions about that memory. The next bit - are you okay to continue?

P5
Yep, it's fine.

Interviewer
The next bit is about difficult thoughts that you might experience. And so have you been aware in the last week of thoughts that have kept coming spontaneously into your mind giving you a similar message each time? Sometimes the thoughts may just comment or give instructions or say if something's good or bad.

P5
No.

Interviewer
All right, so earlier on you... there's a few things that I want to hold in mind from earlier on in the interview. That's your feelings of anxiety around other people. And also, you're hearing things that aren't really there. Um, and you also mentioned, you know, having these very difficult memories of what happened to you when you were younger? So, do do these things seem related to you in any kind of way? So -
Yes. Yeah, so if I was to put it bluntly, between the ages of six and seven, I was repeatedly raped for over a year, which... but then, at the age of about nine, I was raped by two girls at knifepoint. So, like corrugated knives I hate, like bread knives, I can't... if I see one of those, I kind of panic. And it's the grand total of that seems to have been that I'm terrified of everyone, male or female. Yeah, a lot of it would stem you know, it's undeniable. 99% of it would stem from those negative experiences

**Interviewer**
Yeah. Really understandable from what you're describing. So I mean, there's, I guess there's an understandable relation between the fear and pain, the experience from that trauma and feeling anxious around other people. What about hearing things that aren't there does that seem related in any kind of way.

**P5**
Yeah. So if, if, like with the graph, if I... like, at first as I say, it was very bad at the time, and then I slowly got better till I was, I think I kind of - obviously not, not very well done because I was a child - I kind of learned to cope with it. And I didn't have... I found it difficult trusting people or having close friends in primary school, and then in secondary school, I got a close friend. And I, you know, I was top set everything, I was doing well. I could tell you exactly... and we went camping and whilst I was sleeping, he kisses me on the lips. And I didn't do - I just froze. I didn't do anything. But it kind of reopened Pandora's box. And from... you know, he's still a close friend [laughs]. Um, you know, I'm not blaming him at all, but... I suddenly didn't feel safe. That's kind of like where it shot up again and, you know, my mental state completely went out the window. And that's when kind of like the seeing stuff that wasn't there, hearing stuff that wasn't there really was at its worst.

**Interviewer**
Okay so that kind of started during... triggering episode for you where everything got a lot worse?

**P5**
Mm-hmm.

**Interviewer**
And, you know, the things that you hear. Specifically you mentioned birds, your name -

**P5**
Knocking, knocking at the door or the phone ringing.

**Interviewer**
Do any of the specific things that you hear seem related to the memories?

**P5**
Not at all.
Okay. And what about in terms of, I guess I would say thematically but... I don't know, I guess there's a there's a theme? A door knocking, you being called, a phone ringing. Could you say there's a theme there?

P5
Contact? I don't like being contacted. Now, if I'm feeling really bad, I won't answer the door. I have a garden, but I, I struggle to be in my own garden if the neighbours will see me. You know, I won't... there's nothing wrong, you know, with the neighbours seeing me, but I just am so self conscious and aware that I just feel too uncomfortable. Um, so I don't like answering the... I hate answering the phone, I hate answering the door, I hate [laughs]...

Interviewer
So then, the actual content of what you hear, which I suppose are things that maybe you don't like or like you said make you feel uncomfortable. Does that seem related to your anxieties about other people, finding them hostile?

P5
I don't feel emotionally the same. Obviously, I hear these sounds when I tend to be in a worse place related to the abuse but... it's more of a shock of like, if you turn and you might have your coat hanging up on the door, and for a split second you think someone standing there but you don't expect them to be and then you have the shock. It's that kind of shock when I hear the noise, but I don't associate it with threat or danger. It, specifically it's just more of a jump scare. But then hearing like the bird noises or a knock or if it's someone calling my name or if it's a phone ring, it's more of a like a jump scare, sudden, but sometimes it will just genuinely just be like bird noises with no positive or negative connotation.

Interviewer
Does anything feel similar about a jump scare, as you describe it, and an intrusive memory that comes back into your mind against your will?

P5
Could you repeat that I didn't hear properly?

Interviewer
Okay, and, you know, these questions are a bit confusing. But I wonder if there's anything that seems related to kind of a jump scare as you describe it, and a distressing memory coming into your mind? Again, you know, intrusively.

P5
I'd say that the correlation is very strong between when I have one I'll have the other, but I think like, emotionally, if you map an emotional theme, they're so different from each other [laughs]. But there's definitely a strong correlation between being, as I say, in a bad place and getting these, if that makes sense.
Yeah. So kind of, in terms of just the specificities of what it is exactly, like a you know, a bird sound or a door knocking and the memory itself, there doesn't seem to be much connection. But maybe in terms of that shock and how it actually makes you feel, it might be similar?

P5
Yeah, just... I can't explain the bird sounds but with like the knocking or the calling name, it's like the my flight reaction being an overdrive. And I have no idea about the bird sounds [laughs].

Interviewer
Do you hate birds, maybe?

P5
I love birds [laughs].

Interviewer
Did you say it's an eagle sound? Is that a particular bird that you like or?

P5
No, actually it's very common here to have in the summer, buzzards circling and you'll hear them calling out, normally when they're fighting each other for territory or getting mobbed by crows, but it's a very common sound in the summer. In north Wales, buzzards cawing, calling out.

Interviewer
So we're coming on to the final couple question or two that I have. You probably don't remember, or maybe you do, but when you did all of those questionnaires online there was one in particular that asked about beliefs that you hold about yourself and other people. I can screen share it with you for just a little reminder but it's not super important if you remember it or not to be honest.

P5
I can't remember [laughs]! It might be a different answer now to what it was then.

Interviewer
Could be. Just to give you a flavour of it - can you see this - so we have these sorts of beliefs you might have about yourself and you say whether you believe them or not and how strongly you believe them. Beliefs about other people if you believe it or not, and how strongly you believe it. So, at least when you completed it back then the the highest score that you had was for negative beliefs about yourself?

P5
Yeah.

Interviewer
Probably rating those negative beliefs about yourself quite highly. Now I wonder if you have any thoughts on whether those negative beliefs you hold about yourself
might link to the memory that you have, and slash or the feeling anxious around other people and slash or hearing things that aren't really there?

**P5**
So do I think that my negative feelings about myself are... was it related or to do with?

**Interviewer**
Well, related, linked to, to do with, however you want to phrase it, but just have some kind of relationship with the memories you experience?

**P5**
I think the best way... it's like, I feel for most of my life, I've been growing up with these... I don't know how... the secret, dirty secret that I don't want anyone else to know. And I'm paranoid of them finding out or knowing... and that... it makes you feel bad. I don't know how to - you feel, you know, as a child, you know, I didn't have any counselling or any help or anything. I didn't tell anyone for a long time, so you feel like you have a dirty secret. And it's, it's very difficult to put into words how much this affects you. Because, like, obviously, now I'm being quite open about it with you. But up until the age of about 25, I would have never admitted it, or told anyone, and been in complete denial of it, of any of it. And it does make you feel dirty. And corrupted. That's one way to describe it.

**Interviewer**
Yeah. I mean, you know, it's very, very common feelings to have when something so terrible and traumatic has happened to you. And, you know, feelings of shame that you can carry after something like that, you know, as you say, 'dirty secret', you don't want people to know about it. And are you saying that that's had an impact on how generally you feel about yourself?

**P5**
Yeah.

**Interviewer**
Yeah. And made you feel more negatively towards yourself?

**P5**
Yeah definitely.

**Interviewer**
Yeah. And I think, you know, that makes sense. You know, because it's so painful. And if this experience has had an impact on your beliefs about yourself, do you then think that those beliefs about yourself have had a relationship to, you know, later on or concurrently feeling worried around other people?

**P5**
Definitely.
Interviewer
So what's the link there between kind of holding negative beliefs about yourself and feeling on edge around other people?

P5
Just feeling judged, or it's like... like the one stereotype, I don't know the statistics or the correlation, but like there's an assumption that particularly if you're male, and you've been sexually abused, then you are at high risk of sexually abusing other people, especially kids, which I would never... I can only speak for myself, but there are these negative stereotypes that I've heard people saying. Like I remember, as a teenager, I think on Rado 4 they did a survey where they asked people, "If there's an emergency and you've got to leave your children with a neighbour, your neighbour on one side is an alcoholic and your neighbour on the other side is teetotal, who'd you leave your kids with?", and the vast majority of them would rather leave a child of an alcoholic than with someone who's teetotal. Because the general consensus was that, like they didn't trust teetotal people because they weren't normal. And as someone who's teetotal, I found that quite offensive [laughs]. Because I would I find it offensive that they would deem me, as someone who doesn't drink alcohol, more of a risk than someone who's drunk to their children [laughs]. But that, you know, that's just alcohol, but as I say, I don't know the statistics whether there is a correlation between people who are sexually abused as children, and if they are more or less likely to go on to abuse other kids, but there is a stereotype or a public belief that that is the case. As I say, I don't know the any evidence for or against personally, but yeah.

Interviewer
Yeah, so that's your view, yeah.

P5
Sorry, I'm going around in circles.

Interviewer
No, I think you gave me a good answer, so thank you for that. My final question really, is coming back to those negative beliefs you might hold about yourself. You spoke about how that might relate to your feelings of anxiety around others. I'm wondering if you feel that that relates to hearing things that aren't there?

P5
Um, I think generally the hearing stuff that isn't there or isn't being sounded, I tend to get that when I'm by myself. It's more when I am stressed out by myself. I think when I am depressed or in a very bad state of having bad memories and stuff is very... I have different symptoms and reactions than when I am stressed in a public or social situation. And although they have similarities, they have the same root cause, they're separate situations, I think. So, if I was just walking down the street, sometimes I just don't want to walk, I don't want to go in a public place, I don't want to walk down the street, I don't want to go into a shop, I don't want to think. But if I was in the shop and feeling that I need to get out of here, I don't ever remember hearing any voices or any sounds that weren't there when I was in that kind of panic.
That's more of like a panicky situation. Whereas when I'm hearing sounds that aren't there, it's different. It's like when my thought processes starts focusing in on something really stupid that I, you know, I'll get obsessed with something and just constantly think, and read up all the research paper on something stupid, or a particular period of history or something like that. And just the whole thing keeps on replaying, so that I get a very good understanding of it. But that's more kind of like emotional avoidance, trying not to think emotionally, and just flooding my brain with something else to think about. I think that's when I'm more likely to hear the sounds that aren't there.

**Interviewer**

Great. Okay, so that was actually my final question. Thank you very much for speaking with me today, I know we've kind of run over. So I really appreciate your generosity with your time.
Appendix L

Example of Coding Within Nvivo Software

Coding P3

Reviewing All Excerpts Tagged with ‘Perceptual Changes – Hearing’