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Abstracts

Systematic review of the literature

Purpose

Autism is being increasingly diagnosed, and this is predicted to continue to increase with improvements in recognition. Parents and caregivers of autistic children are known to experience increased psychological distress, mental health conditions, and lower wellbeing in comparison to parents of non-autistic children. It is therefore increasingly important to evaluate the efficacy of potential psychological interventions to support parents. Third-wave interventions aim to target how an individual relates to their internal world by targeting processes such as acceptance and defusion. Evidence for the efficacy of third-wave psychological interventions has emerged over recent decades. The purpose of this systematic review was to evaluate the effectiveness of third-wave interventions on the wellbeing and psychological outcomes of parents and caregivers of autistic children aged 2-34.

Methods

Following the development of a search strategy, and dual ratings of abstracts and full paper screening, a total of 17 studies reporting on the outcomes of third-wave CBT interventions were reviewed. Four randomised controlled trials (RCTs) and 13 quasi-experimental studies were included in the study.

Results

The third-wave interventions included were acceptance and commitment therapy (ACT), mindfulness-based interventions (MBIs), and self-compassion and mindfulness interventions (MBSC). Most interventions demonstrated significant reductions in parental distress, anxiety, and depression, as well as improvements in wellbeing. RCTs demonstrated medium to large effect sizes. Most studies were conducted in the USA, Canada, and Spain, and primarily

included White and Hispanic women in their forties, and many were limited by their lack of follow-ups.

Conclusion

Overall, included studies demonstrated some support for the effectiveness of third-wave interventions in improving distress in parents of autistic children aged between infancy and adulthood. There were, however, notable limitations for most studies that reduce the generalisability of findings, and heterogeneity caused difficulties in drawing comparisons between designs. Furthermore, many studies had small sample sizes with poor control over extraneous variables, made use of opportunity sampling, and randomised control trial designs were lacking. Therefore, research with RCT designs, follow up, and larger sample sizes are required in this field to progress the evidence base.

Service improvement project

Introduction

Oxfordshire and Buckinghamshire early intervention in psychosis services (EIS) aim to provide specialist support and assessment to individuals showing symptoms of psychosis for the first time.

Recent research identified up to 10% of those referred to Cambridge EIS were autistic or showed traits of autism (Treise et al., 2021), and a preliminary audit indicated that 31% of the Oxford EIS caseload has confirmed or suspected autism. Autistic individuals benefit from adaptations in the health care they receive (Cooper et al., 2018; Stark et al., 2022). Therapist competency in supporting autistic clients can mediate autistic people's outcomes. This project aimed to explore therapist confidence and competency in providing adapted therapy to autistic people within EIS.

Method

Eleven EIS therapists participated in an online survey, and eight participated in consequent focus groups. Survey data was presented using descriptive statistics, and a thematic analysis was employed to synthesise focus group discussions.

Results

Following the survey, therapists indicated the need for improving competency in working therapeutically with autistic people. Two focus groups identified a range of strengths and areas for development in relation to offering best care and in increasing confidence in adapting therapy to autistic clients with psychosis. A thematic analysis synthesised group discussions and identified themes of Learning, Practice, and Clinical Complexity.

Conclusion

Recommendations were developed based on analysis results and were received well by the service, who agreed to action the recommendations, and routinely review the planned implementation of the agreed recommendations. Conclusions are discussed.

Theoretically driven research project

Background

Auditory verbal hallucinations (AVH/s) are a common phenomenon associated with various psychiatric diagnoses, including psychosis. Evidence has identified strong links between the development of AVHs and childhood adversity, particularly interpersonal trauma. The traumagenic neurodevelopmental model of psychosis theorises that AVHs and psychotic symptoms develop following childhood trauma due to their occurrence during sensitive developmental periods. Research has also identified links between interpersonal trauma in adulthood and AVHs, however literature has not examined the independent effects of childhood interpersonal trauma, while controlling for adulthood interpersonal trauma, and AVHs. This study aimed to explore the link between childhood interpersonal trauma and AVHs while controlling for adulthood trauma.

Methods

Fifty-five participants who experienced distressing verbal hallucinations participated in this study. Participants completed a range of measures related to their experiences of voices, trauma, dissociation, mood and anxiety.

Results

A hierarchical regression indicated that childhood interpersonal trauma was not significantly predictive of distressing voices, when controlling for adulthood trauma. When interpersonal trauma in adulthood was not factored into the regression model, childhood trauma was predictive of AVHs. Adulthood interpersonal trauma was not predictive of AVHs when controlling for childhood trauma. Only childhood interpersonal trauma was significantly associated with dissociation, however mediation analyses revealed that dissociation did not mediate the relationship between childhood or adulthood trauma, and AVHs.

Discussion

The results did not support the traumagenic neurodevelopmental theory that childhood trauma, specifically, is associated with AVH development. The results suggested that adulthood trauma played a significant role in this relationship and further research disentangling the relationship between traumatic experiences and AVHs is required. Limitations and clinical implications are discussed.

Systematic review of the literature

The impact of third-wave therapies on psychological outcomes in parents of autistic children: A systematic review.

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Internal Supervisor: Dr Libby Barnardo, The Oxford Institute of Clinical Psychology Training and Research

Proposed Journal: PLOS Mental Health

Rationale: PLOS mental health is a global open access journal aiming to connect multidisciplinary experts across mental health and related studies. It is hoped this journal would enable the study to reach a wide relevant audience (Appendix A).

Abstract

Purpose

Autism is being increasingly diagnosed, and this is predicted to continue to increase with improvements in recognition. Parents and caregivers of autistic children are known to experience increased psychological distress, mental health conditions, and lower wellbeing in comparison to parents of non-autistic children. It is therefore increasingly important to evaluate the efficacy of potential psychological interventions to support parents. Third-wave interventions aim to target how an individual relates to their internal world by targeting processes such as acceptance and defusion. Evidence for the efficacy of third-wave psychological interventions has emerged over recent decades. The purpose of this systematic review was to evaluate the effectiveness of third-wave interventions on the wellbeing and psychological outcomes of parents and caregivers of autistic children aged 2-34.

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1.0 Introduction

1.1 Autism

Neurodevelopmental conditions are a group of disorders that impact the brain associated with changes to cognitive, affective, social, and physical processes, that often begins in childhood. Autism is a lifelong neurodevelopmental disorder, key symptoms include impairment in social interactions for example failure to develop peer relations, abnormalities in communication such as delay or lack of spoken language, and restricted and repetitive and stereotyped patterns of behaviours, interests, and activities. (ICD-11) [1]. In the UK, approximately 1% of the population has a diagnosis of autism, though this number has increased exponentially over previous years [2] and is predicted to continue to increase with improved identification and recognition [3]. Autistic individuals, including children and adolescents, can show differences from neurotypical people across areas including behaviour, social interactions, sensory experiences, and emotional and mental health, with anxiety and aggression, for example, being more common in autistic children [4]. Such difficulties impact not only the autistic person, but those in their social environments.

1.2 Parental stress and autism

Research has shown that parents and caregivers of autistic children experience increased stress and psychopathology compared to parents of non-autistic children [5]. Anxiety and depression are common in caregivers of autistic children, with up to 60% of parents reporting clinical anxiety, and 60% reporting depression [6, 7]. These are more common than in parents of non-autistic children, and parents of children with other neurodevelopmental disorders, including cerebral palsy and intellectual disability [5, 8]. However, most explorations of the experience of parents of autistic children have been conducted in Western contexts [5]. NICE guidelines

additionally recommend supporting the needs of parents and caregivers of autistic children [9].

Factors associated with increased parental stress have been identified in the literature and include child, parent, and social factors [10]. Parental stress, depression, and anxiety are all predicted by the severity of the autistic child's symptoms [11], number of co-occurring conditions, and the degree of the child's emotional and behavioural difficulties [12]. Furthermore, parental depression is associated with self-stigma, poor coping strategies, and parental perceived limit-setting ability [10, 13]. On social levels, poor relationships with extended family [10], and societal stigma of autism further contribute to poor parental wellbeing [14]. Parents of autistic children additionally report lower relationship satisfaction, and divorce rates are increased compared to parents of children without disabilities [15].

Parental wellbeing and autism related symptoms and behaviours negatively impact one another, and parental stress, anxiety, and depression additionally negatively impact the child's physical and mental health [16]. Furthermore, poorer learning outcomes of autistic children are predicted by parental stress, depression, and lower quality of life [10, 17]. Caregivers of autistic children have also been found to be at higher risk of death, and to experience lower survivorship [18].

Not all parents and caregivers of autistic children experience increased stress levels, or depression and anxiety symptoms. Some protective factors relate to resilience traits in families, including family hardiness, a measure of a family's ability to withstand and adapt to stressful situations, which was inversely predictive of parental depression [19]. Additional protective factors relate to psychological resilience [6], social support perception [11], and effective coping skills [20]. Involvement in social support groups may also be protective in parents of autistic children [20]. Compassion, self-compassion, and self-enhancing humour have

additionally been found to buffer against parental stress, anxiety, and depression, as well as negative affiliates of stigma [21-23].

1.3 Interventions to address parental needs

Evidence indicates that parents and caregivers of autistic children benefit from interventions targeting their mental health and wellbeing [24, 25]. Parental stress can additionally impact the effectiveness of treatments for the child, it is therefore thought that interventions targeting parental distress may improve treatments for the child. A variety of interventions including cognitive-behavioural therapy, mindfulness-based interventions (MBI/s) relaxation therapy, expressive writing, acceptance and commitment therapy (ACT), and psycho-education interventions have been examined for their efficacy in reducing parental stress, and anxiety and depression symptoms in parents of autistic children [25, 26].

In a review of ACT, MBIs and CBT interventions three studies that implemented MBIs demonstrated large effect sizes and significant reductions in parents' distress, anxiety and depression, and parenting stress [25]. ACT was also shown to lower parenting stress and depression, and expressive writing had a large effect on reducing subjective stress [25]. Studies examining the efficacy of cognitive behavioural therapy (CBT) suggested promising outcomes, though samples sizes were small with only 17 participants across all three studies examined[27]. The authors concluded that parent interventions often fell into two distinct streams: a) those with a focus on in-the-moment tools and skills and b) those that focused on increasing psychological wellbeing through concepts such as acceptance, compassion, and forgiveness [25].

1.4 Third-wave interventions

CBT encompasses a range of interventions commonly viewed as the most empirically supported psychological interventions [28]. The first wave of CBT is behavioural therapy, based on learning principles, the target for the interventions were behavioural change. The second wave of CBT emerged by the late 1970s, which moved into the era of classic CBT [29]. Here, newer methods and concepts focused on maladaptive thinking patterns in emotion and behaviour, and methods to change those patterns. The term "third-wave" CBT, emerged in 2004 [28], where it was claimed that a new set of behavioural and cognitive approaches were emerging based on concepts that were increasingly focused on a person's *relationship* to thought and emotion, rather than their content [29].

Third-wave methods highlight the importance of mindfulness, acceptance, relationships, values, goals and meta-cognition [29]. A range of process-oriented models have emerged within third-wave CBT, including ACT, MBIs, compassion-focused therapy (CFT), dialectical behavioural therapy (DBT), mindfulness-based cognitive therapy (MBCT), meta-cognitive therapy, and several others [30]. The evidence base for the efficacy of third-wave methods is now extensive [30]. Though some third-wave methods are as efficacious and rigorous as CBT, it is not seen as useful to put methods against each other, as different interventions are fit for different aspects of distress, any different moderators are associated with differing outcomes [30].

The emergence of third-wave CBT developed from the constant changes happening across CBT at the time [30]. The wide application of third-wave approaches to a variety of symptoms and distress is observable in the flexible and functional attention focus of MBIs, values work in ACT, and emotion regulation skills in DBT. Such changes have contributed to a move away from specific diagnosis focus in recent decades in CBT development [30] and to a more

transdiagnostic process-based model of intervention. Five key features of third-wave methods were highlighted by Hayes and Hofmann (2021) [30], these are summarised below. It is notable these are now frequently assimilated into core CBT approaches.

1. Context and Function Focus

Almost all third-wave therapies focus on the context and function of psychological events, within their principles of change, rather than their content alone [30].

2. Building on Other CBT Strands

Third-wave approaches acknowledge the importance of carrying forward previous useful learning and theory [30]. Newer CBT approaches have committed to this, and well-tested and researched processes have been included as they developed.

3. Broad and Flexible Repertoires vs. Signs and Symptoms

As opposed to narrowly conceived clinical psychopathology, newer methods are characterised by broad focuses, evidenced by the breadth of processes of change and application to virtually any life situation [30]. Such changes have contributed to the rapid break down of specific syndrome focus in recent decades in CBT development [30], and thus has contributed to a change to a more process-based model of evidence based intervention.

4. Clinician Processes

Almost all new therapies focus on applying the intervention to the practitioners in addition to clients [30]. This is, in part, due to the more experiential methods, and the held belief that you cannot teach what you cannot do. Furthermore, there is evidence that third-wave methods lead to better psychological outcomes for practitioners, not just clients.

5. Expanding into More Complex Issues

In comparison to CBT, third-wave methods attempt to address a variety of complex human issues, traditionally more present in humanistic, analytic, or systems-oriented approaches [30].

1.6 Types of third-wave interventions

As discussed, there are a variety of third-wave CBT interventions, for this review, ACT, MBIs, and mindfulness and compassion interventions are summarised.

1.6.1 ACT

ACT is a therapy that aims to reduce suffering and increase wellbeing via six core-processes [28]. It is a blend of mindfulness therapies and CBT that combines nonjudgemental acceptance of uncomfortable or distressing emotions with cognitive defusion to disrupt relations to emotions. Blackledge and Hayes (2006) [31] highlighted the usefulness of ACT in particular, for parents of autistic children, due to the fact that the child's autistic behaviours or characteristics that challenge, are unlikely to change. Therefore, it is imperative for parents to find ways to accept unpleasant or uncomfortable emotions and experiences that may arise.

1.6.2 MBIs

Mindful practices and interventions involve a range of self-regulation and awareness practices to support acceptance of thoughts and feelings in the present moment, observation of mental processes and improve general wellbeing. Over the last few years there has been growing interest in mindfulness-based interventions (MBI/s) and evidence has supported the efficacy of MBIs in promoting health and wellbeing [32]. First generation MBIs are often represented by

mindful based stress reduction (MBSR) and mindfulness based cognitive training (MBCT) [33].

1.6.3 Mindfulness and compassion interventions

Second generation MBI, which has emerged more recently, encompasses a range of interventions characterised by training of compassion and self-compassion. In second wave MBI, and compassion-based interventions (CBI), acceptance and awareness are key concepts. Research into second generation MBI has demonstrated their efficacy in improving mental health and social connection in clinical and general populations [34, 35]. Furthermore, CBIs cultivate compassion using mindfulness to enable individuals to access, tolerate and direct motives and emotions for themselves and others. Compassion has been found to improve a variety of outcomes including physiological health, mental health and emotion regulation, resiliency, and social and interpersonal relationships [34].

1.7 This review

The aims of the current review are to understand the effect of third-wave interventions on the wellbeing on parents of autistic children. It is hoped that better understanding of this area will increase the resilience and support available to caregivers of autistic children. Our review therefore aims to address the following questions:

- Do third-wave interventions improve psychological wellbeing or health, or reduce stress, in caregivers of autistic children?
- Are there any factors that mediate the effectiveness of third-wave interventions on caregiver psychological wellbeing?

2.0 Method

This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (PRISMA; Page et al., 2021). The protocol was registered on PROSPERO (ID: CRD42024461112, available at: https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=461112.

2.1 Eligibility criteria

Inclusion criteria:

- Original, peer-reviewed research articles using quantitative or mixed methods.
- Published in English, full text available.
- Studies exploring the effectiveness of third-wave interventions in parents or caregivers of autistic children.
- Any year or location.
- Studies exploring multiple third-wave interventions (e.g. Mindfulness and compassion training).

Exclusion criteria:

- Literature reviews, books, editorial letters, theoretical papers.
- Purely qualitative studies.
- Studies exploring third-wave interventions in the families of non-autistic populations.
- Studies exploring third-wave interventions in autistic people.
- Studies exploring third-wave and other non third-wave interventions e.g. Mindfulness in conjunction with parenting focused interventions.

2.2 Search strategy

A search strategy was developed with input from a librarian, terms were piloted and refined to ensure relevant papers were identified. When refined, on the 7th September 2024, the following databases were searched: PubMed, Scopus, and Ovid (including MEDLINE, PsycINFO, EMBASE, and APAPsyArticles). Search terms included "third-wave" and terms related to specific interventions, "parent" and related vocabulary, and "autism", and other diagnostic labels (see Appendix B). The search was re-run on 21st April 2025.

2.3 Study selection

Screening was conducted by two trainee clinical psychologists (the primary author, CTC, was the first reviewer, ABT was the second reviewer). All papers were exported to Endnote and duplicates were removed. Papers were excluded if they did not meet the criteria detailed previously (figure 1). Abstracts were screened for relevance based on inclusion criteria; these were rated in excel. If the abstract screening was not conclusive, the paper was included for screening in the next stage. Twenty percent of abstracts were read by both reviewers (n=206), inter-rater reliability calculations indicated agreement on 99.61% of papers (Cohen's k = 0.963). Disagreements (n = 1) were resolved through discussion.

For abstracts that met inclusion criteria, or did not seem clear, full texts were screened. Twenty-five percent of full text were reviewed by both reviewers independently, and inter-rater calculations indicated agreement on 100% of papers (Cohen's k = 1.0) [36].

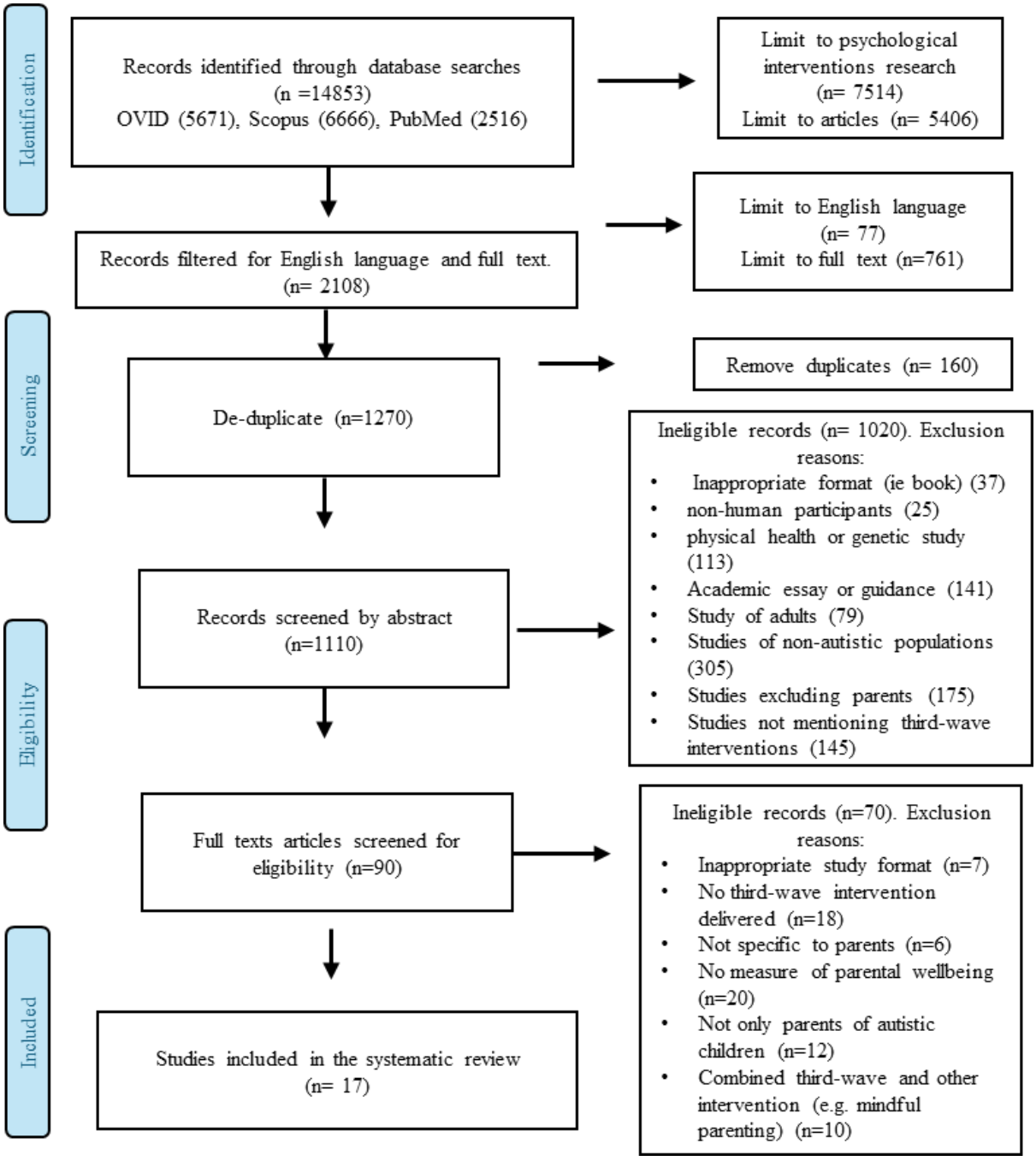

Figure 1: PRISMA Flow Diagram of Screening Process

2.4 Data extraction

With some adaptations to the Cochrane data extraction template [37], the following data were extracted from each study: Author, title, and publication year; sample characteristics

(participant population, sample size, participant characteristics and country); study characteristics (design, intervention, intervention duration, assessment points, and relevant measures); and key results (statistical analysis methods and main/relevant findings). The template was developed by the primary author and piloted by the second-rater. All data were extracted by the primary author, and 50% by the second reviewer, the extracted data were compared to ensure inter-rater reliability (Cohen's Kappa= 0.949) and discrepancies were discussed and resolved.

2.6 Assessment of risk of bias

Standard quality assessment criteria for evaluating primary research papers, specifically the Downs and Black checklist for Assessing Quality, was used to inform evaluation of paper quality for inclusion in the review [38], see Appendix C. This measure was used due its ability to assess both randomised and non-randomised studies. The primary reviewer reviewed all included texts to ensure quality assessment, the second reviewer independently reviewed 30% of included papers. Individual papers were marked against the standard checklist to assess risk of bias and produce an overall quality score. A Cohen's Kappa statistic showed a total agreement level of 1.0.

2.6 Data synthesis

This review employed a narrative synthesis design. A meta-analysis was not conducted due to the number of studies and lack of homogeneity of their designs. The following stages were completed. Firstly, a preliminary synthesis of findings of included studies was conducted. Studies were grouped by factors including population groups, study design, and outcomes.

Heterogeneity was assessed to inform explorations of relationships in the data. Narrative descriptions of data are displayed in tables.

3.0 Results

3.1 Review of intervention techniques

3.1.1 Treatment modalities

Both single-modality and multimodal interventions were identified. Though all third-wave interventions were included in the search terms, only ACT, MBIs (including MBSR and MBCT), and MBSC interventions were returned. Six studies examined single-modality MBIs, this included five quasi-experimental designs (QEDs) using repeated measures, and one randomised control trial (RCT/s). Eleven studies explored multiple modalities, eight of which examined ACT. Three of these were RCTs and five were QEDs. The remaining studies looked at mindfulness and compassion-based interventions, all of which were QEDs. The following provides further details of these interventions, grouped by treatment modality.

3.1.2 Acceptance and Commitment Therapy

A total of eight studies included delivered ACT interventions to parents of autistic children. Some protocols used overlapped, for example Cañón (2023) [39] replicated the protocol of Blackledge and Hayes (2006) [31], and Fung (2018) [40], Lunsky (2021) [41], and Maughan (2024) [42] replicated the protocol from Fung and Zurowski (2008) [43], later built upon by Lunsky (2012) [44]. In all studies, intervention groups broadly focused on (a) values clarification, (b) cognitive and defusion strategies, (c) mindfulness and observation training, (d) committed action, and (e) psychological acceptance. Groups involved the use of experiential group exercises with the aim of increasing defusion and acceptance of difficult thoughts and emotions arising from being a parent, enhancing a mindfulness stance and a

transcendent sense of observer-self, and facilitating reconnection and commitment to one's values, including valued activities other than parenting. Furthermore, some studies adapted ACT for specific cultures, e.g. Lobato (2023) [45] delivered ACT groups to Spanish parents and Uramoto (2023) [46] delivered the group adapted to Japanese mothers.

3.1.3 Mindfulness Based Interventions (MBI)

A total of six studies included in the review delivered MBIs. One study delivered MBSR [47], and another delivered a protocol most closely related to MBSR protocols [48]. Neece (2019) [47] followed the established MBSR manual [49] and included formal mindfulness exercises aimed to increase the capacity for mindfulness and included body scans, mindful yoga, and sitting meditation. Lunsky (2021) [41] followed the standard MBCT programme, with adaptations for parents of children with neurodevelopmental disorders. The course taught participants mindfulness skills (breathing meditation, body scan, mindful yoga, walking meditation, and loving-kindness), alongside other parents, and incorporated home-practice.

The final three studies delivered general MBIs, inspired by both MBSR and MBCT, but without close adherence to either protocol. Bellone (2023) [50] delivered Mindful Self-Care for Caregivers (MSCC), which like MBSR and MBCT, combines gradual training in mindful, self-care skills, and cognitive therapy's decentring and defusion. Rayan and Ahmad (2017) [51] delivered a five-week MBI course, including two initial 90-minute sessions, followed by three weeks of home-practice. In person sessions included psychoeducation and the benefits of mindfulness; description of the five core mindfulness skills and new skills such as mindful practices; and integrating mindfulness into different aspects of life. Ruiz-Robledillo (2015) [52] delivered a mindfulness-based program, where participants were introduced to the principles of mindfulness and meditation and the cognitive model of mindfulness, they took

part in experiential mindfulness, and completed homework each week. Practices included mindful eating, short breath meditation, body scan meditation and long-sitting mediations.

3.1.4 Mindfulness and Compassion Based Interventions (MBSC)

A total of three studies included in this review described mindfulness and compassion-based therapies. Curl and Hampton (2023) [53] delivered a mindful self-compassion (MSC) workshop, which included key beginner lessons as opposed to a full MSC course. Key topics covered in the workshop included meditation, introduction to self-compassion, breathing practices, and compassion to self exercises such as "how would I treat a friend". Fernández-Carriba (2019) [24] delivered compassion based cognitive therapy (CBCT) to parents. Their CBCT protocol consisted of six integrated modules geared toward teaching participants compassion through mindfulness practices, developed in 2012 [54]. Modules included developing attention, cultivating self-compassion, and developing appreciation and affection for others. Rojas-Torres (2021) [55] delivered a mindfulness and self-compassion-based program inspired by MBSR and MSC training programs, adapted to the particular needs of parents of children with ASD. Sessions were based on an MBSR standardised program with integrated aspects based on MSC training focused on the development of self-compassion skills to overcome self-criticism and prevent them from becoming anxiety or depression.

4.0 Intervention procedures

4.1 Format

All studies presented intervention sessions in group settings. Group sessions incorporated teaching and/or guided practice and experiential activities. Thirteen interventions took place face-to-face, and three were online groups [41, 47, 54]. In the study of Rayan and Ahmad

(2017) [52], though the first two of five sessions (totalling five hours), were delivered in person, the remaining three weeks involved self-practice with a telephone check-in,

4.2 Intervention duration

Eight interventions met once per week. The majority of these (six), delivered their groups for eight weeks [24, 48, 50, 52, 55, 56], Ruiz-Robledillo (2015) [52] additionally offered a final session two-weeks after the final group and the participants of Neece (2024) [56] also attended a 6-hour weekend retreat. Uramoto (2023) [46] delivered four sessions, and Lunsky (2021) [41] delivered six weekly sessions. Rayan and Ahmad (2016) [57] delivered their intervention over five weeks, though only the first two sessions involved in-person groups. Group session lengths were one hour [46], 90 minutes [41, 50, 55], two hours [24, 52, 56, 58], and 2.5 hours [48, 57].

Five interventions were delivered as short-term workshops. Both Blackledge and Hayes (2006) [31] and Cañón (2023) [39] delivered two day workshops of 14 hours. Fung (2018) [40] Lunsky (2018) [59] and Maughan (2024) [42] all provided 1.5 day workshops, plus a refresher session. Three studies delivered weekly sessions that were briefer than a typical therapy course, and are therefore viewed as somewhere between workshops and weekly interventions. Lobato (2023) [45] provided 3 sessions of 3 hours, weekly, Hahs (2019) [60] delivered 2 weekly 2-hour sessions, and Curl and Hampton (2023) [53] delivered 75-minute sessions over three weeks.

5.0 Research summary

Authors (Year), Location	Third-wave intervention	Method	N total (N intervention)	Mean age (years)	Gender (% female)	Intervention	Outcome measures	Findings
Bellone et al (2023). USA. [50].	MBI	QED (three assessment points)	13	43.1	92.3	Mindful Self-Care for Caregivers (MSCC) was delivered in eight weekly groups of 1.5-hour classes.	PSFFV2 PHQ-9 FFMQ-15	PSFF-V2 *p=0.169,* PHQ-9 *p*=0.105, FFMQ-16 *p*= 0.026*
Blackledge & Hayes (2006). USA. [31].	ACT	QED (four assessment points)	20	42.9	75	ACT two-day workshops delivered over 14 hours, drawn largely from Hayes and colleagues [61].	GSI BDI-II GHQ-28 AAQ-9	GSI *p*=0.002**, BDI-II *p*=0.006**, GHQ-28 significance (unstated), AAQ-9 *p*=0.043*
Cañón et al (2023). USA. [39].	ACT	QED, (three assessment points)	15	39.6	100	ACT two-day workshops delivered over 14 hours, drawn largely from Blackledge and Hayes [31].	AAQ-9 BDI-II BAI	AAQ-9 *p*= 0.001***, BDI-II *p*= 0.008**, BAI significance 0.006**
Curl & Hampton (2024). USA. [53].	MSC	QED (two assessment points)	9	unstated	100	The MSC intervention three workshops were delivered virtually for 75-minutes, once a week.	PSI-SF FMI SCS	PSI-SF *p*= 0.046*, FMI *p*=0.007**, SCS *p*=0.030*
Fernández-Carriba et al (2019). USA. [24].	CBCT	QED was used, (two assessment points)	14	45	85.7	CBCT groups ran once weekly over eight weeks for two hours and were based on the format developed in 2012 by Ozawa and colleagues [54]	PSI-SF PSS AAQ MAAS	PSI-SF *p*= 0.003**, PSS *p*= 0.005**, AAQ *p*= 0.019*, MAAS *p*= 0.004**

Authors (Year), Location	Third-wave intervention	Method	N total (N intervention)	Mean age (years)	Gender (% female)	Intervention	Outcome measures	Findings
Fung et al (2018). Canada. [40].	ACT	QED, (three assessment points)	29	44.8	100	The ACT group consisted of a 1.5-day workshop followed by a refresher evening session. The group was based on previous work adapting ACT for clinical and non-clinical populations [43].	AAQ-II CFQ-13 VLQ DASS-21	AAQ-II *p*= 0.001***, CFQ-13 *p*= 0.001***, VLQ *p*= 0.001*** DASS-21- not stated.
Hahs et al (2019). USA. [60].	ACT	RCT (two assessment points)	9	43.8	77.8	The ACT group consisted of two, 2-hour workshops, that targeted the six processes of the hexaflex used in ACT.	AAQ-II CFQ-13 FMI MAAS PVQ-II BDI-II	AAQ-II effect size *d*= **0.94,** CFQ-13 effect size *d*= **0.83,** FMI effect size *d*= 0.32, MAAS effect size *d*= **1.29,** PVQ-II effect size *d*= **1.11,** BDI-II effect size *d*= **1.01**
Hwang et al (2015). Australia. [48].	MBI	QED, (three assessment points)	6	40.5	100	The MBI group took place over eight weeks for 2.5-hour weekly sessions. A two-month self-practice period followed the training, following that children were trained.	FMII PSS FQOL	<u>Post intervention</u> FMII *p*= 0.042*, PSS *p*= 0.093, FQOL non-significant (unstated) <u>Follow up</u> FMII non-significant (unstated), PSS *p*= 0.043*, FQOL *p*= 0.080

Authors (Year), Location	Third-wave intervention	Method	N total (N intervention)	Mean age (years)	Gender (% female)	Intervention	Outcome measures	Findings
Lobato et al (2023). Spain. [45].	ACT	RCT (three assessment points)	14	41.2	78.6	The brief ACT group intervention consisted of three sessions, each with a duration of three hours.	6-PAQ PSS GHQ-12 (Validated Spanish versions).	<u>Post-intervention</u> 6-PAQ effect size *d*= 0.57, PSS effect size *d*= 0.76, GHQ-12 effect size *d*= 0.39 <u>Follow up</u> 6-PAQ effect size *d*= **0.84,** PSS effect size *d*= **1.44,** GHQ-12 effect size *d*= 0.54
Lunsky et al (2021). Canada. [41]	MBCT	QED, (three assessment points)	39	52.7	89.7	The group-based intervention was an adaptation of mindfulness based cognitive therapy (MBCT) and was delivered weekly, for six weeks, sessions were 90 minutes.	DASS-21 FFMQ BMPS SCS-SF RCAS PGS	DASS-21 $p<0.001$***, FFMQ $p<0.001$***, BMPS $p= 0.009$**, SCS-SF $p= 0.006$**
Lunsky et al (2018). Canada. [59].	ACT	QED, (three assessment points)	29	44.8	100	The group intervention was delivered via one evening session followed by a full-day session and a second refresher evening session 1 month later. This format was based on previous work adapting ACT [43].	DASS-21: depression and stress subscales PSI-4: physical health and isolation subscales	<u>Post intervention</u> DASS-21 stress $p=0.001$***, DASS-21 depression $p=0.029$*, PSI-4 physical health $p=0.004$**, PSI-4 isolation $p=0.054$ <u>Follow up</u> DASS-21 stress $p<0.001$***, DASS-21 depression $p=0.001$***, PSI-4 physical health $p=0.005$**, PSI-4 isolation $p=0.116$

Authors (Year), Location	Third-wave intervention	Method	N total (N intervention)	Mean age (years)	Gender (% female)	Intervention	Outcome measures	Findings
Maughan et al (2024). Canada. [42].	ACT	RCT (four assessment points)	27	47.11	88.9	The intervention was a three-session workshop, developed by Fung and colleagues [40] and described in detail by Lunsky and colleagues [59].	DASS-21: depression and stress subscale PSI-4: physical health and isolation subscales PANAS AAQ-II CFQ-13 VLQ	<u>Post-intervention:</u> DASS-21 depression subscale effect size *d*= **-0.87,** DASS-21 stress subscale effect size *d*= -0.46, PANAS effect size *d*= **0.77** <u>Follow up:</u> DASS-21 depression subscale effect size *d*= -0.64, DASS-21 stress subscale effect size *d*= -0.38, PSI-4 physical health subscale effect size *d*= -0.42, PSI-4 isolation subscale effect size *d*= -0.32,, PANAS effect size *d*= 0.34, AAQ-II effect size *d*= -0.41, CFQ-13 effect size *d*= -0.22, VLQ effect size *d*= 0.28
Neece et al (2024). USA. [56].	MBSR	RCT (four assessment points)	59	34.6	91.5	The MBSR intervention followed the established MBSR manual [49] and included eight weekly 2-h group sessions, a 6-h meditation retreat on the weekend after session 6 and home practice.	PSI4-SF: parenting distress subscale FIQ-NI PDH-I	Authors did not provide enough details for effect sizes to be calculated. Parenting stress significantly decreased over time in both groups ($b = -2.647$, $p < 0.0001$), but that relationship was significantly stronger for participants in MBSR than for participants in psychoeducation ($b = -1.970$, $p < 0.05$).

Authors (Year), Location	Third-wave intervention	Method	N total (N intervention)	Mean age (years)	Gender (% female)	Intervention	Outcome measures	Findings
Rayan & Ahmad (2016). Jordan. [57].	MBI	QED (two assessment points)	52	unstated	71.1	The group intervention was a brief five-week MBI, parents were required to attend two 150-minute in-person sessions, and then completed three weeks of guided homework.	WHOQOL-BR*I*EF CERQ MAAS (Validated Arabic versions)	WHOQOL-BRIEF psychological health domain $p<0.001$***, WHOQOL=BRIEF physical health $p<0.062$, WHOQOL-BRIEF environmental health $p<0.336$, CERQ $p=0.001$***, MAAS $p<0.001$***
Rojas-Torres et al (2023). Spain. [61].	MSC	QED (three assessment points)	5	39.8	100	The Mindfulness and Self-Compassion-Based Intervention Program was inspired by MBSR and MSC (mindful self-compassion), the program took place over 8 weekly 90-minute sessions.	MASS DASS-21: depression, anxiety and parenting stress subscales SLS (Validated Spanish versions)	MASS $p=0.001$***, DASS-21 stress $p=0.07$, DASS-21 anxiety $p=0.25$, DASS-21 depression $p=0.55$, SLS $p=0.02$*
Ruiz-Robledillo et al (2015). Spain. [52].	MBI	QED (three assessment points)	6	44.3	83.3	The Mindfulness-Based Program was run in a group format of eight weekly 2-hour sessions and a final session two weeks later.	STAI-S POMS STAXI-2 GHQ-28 BDI-II (Validated Spanish versions)	STAI-S $p=0.003$**, POMS $p=0.012$*, STAXI-2 $p=0.038$*, GHQ-28 $p=0.02$*, BDI-II $p=0.042$*

Authors (Year), Location	Third-wave intervention	Method	N total (N intervention)	Mean age (years)	Gender (% female)	Intervention	Outcome measures	Findings
Uramoto et al (2023). Japan. [46].	ACT	QED (two assessment points)	4	unstated	100	The ACT group took place online via zoom, over four weekly 60-minute sessions.	6-PAQ PWBS	Authors reported individual outcomes for each participant. The analysis showed that two of four participants demonstrated significant decreases in the 6-PAQ post treatment. For the PWBS, two participants demonstrated significant improvements in specific domains, and another worsened.

Note 1-Outcome measure abbreviations are as follows: The Acceptance and Action Questionnaire-9 [AAQ-9; 63] , Cognitive Fusion Questionnaire [64], Values Living Questionnaire [VLQ; 65], Parental Acceptance Questionnaire [6-PAQ; 66]., Self-Compassion Scale [SCS; 67], Self-Compassion Scale- Short Form [SCS-SF; 68], Five Facet Mindfulness Questionnaire-15 [FFMQ-15; 69], Freiburg Mindfulness Inventory [FMI; 70], Mindful Attention Awareness Scale [MAAS; 71], Bangor Mindfulness Parenting Scale [BMPS; 72], National Institute of Health (NIH) Toolbox Perceived Stress Fixed Form Age 18+v2.0 [73], Patient Health Questionnaire [PHQ-9; 74], The Global Severity Index (GSI) from the Brief Symptom Inventory [BSI; 75], The Beck Depression Inventory–II [BDI; 76], The Beck Anxiety Inventory [BAI; 77], Parenting Stress Index/Short Form [PSI-SF; 78], Depression Anxiety Stress Scales [DASS-21; 79], Beach Family Quality of Life [FQOL; 80], Perceived Stress Scale [PSS; 81], General Health Questionnaire [GHQ; 82], The Positive & Negative Affect Schedule [PANAS; 83], Parenting Daily Hassles questionnaire [PDH-I; 84], Satisfaction with Life Scale [85], State-Trait Anxiety Inventory [STAI-S; 86], Profile of Mood States [POMS; 87], State-Trait Anger Expression Inventory-2 [STAXI-2; 88] , The World Health Organization QOL Assessment-Brief [WHOQOL-BREF; WHOQOL 89], The positive stress reappraisal subscale of the Cognitive Emotion Regulation Questionnaire [CERQ; 90] , Psychological Well-Being Scales [PWBS, 91]

Note 2- Effect sizes for outcome measurements were either reported in article or calculated based on reported data. Levels of effect sizes are indicated as follows: small effect ($0.20 \leq d \leq 0.50$), medium effect ($0.51 \leq d \leq 0.79$), and large effect ($d \geq 0.80$) (bold print).

Note 3- $^{*}p < 0.05$. $^{**}p < 0.01$. $^{***}p < 0.001$.

5.1. Research designs

The studies included in this review were (a) randomised controlled trials (RCT/s) (*n*=3) or (b) quasi-experimental designs (QED/s) (with (*n*=2) and without (*n*=12) non-equivalent control groups) (Table 1). All studies implemented a minimum of baseline and post-intervention assessment points, five studies assessed mid-intervention, and nine completed follow-up assessments.

5.1.1 RCT

Three of the 17 reviewed studies employed random assignment to allocate participants into a variety of control and treatment conditions. Two studies employed a waitlist control group [42, 45]. In comparison, Neece (2024) [56] employed an active control, where parents were allocated to either the MBSR intervention, or a parental psychoeducation group. One study used matched assignment to allocate participants to the ACT group or control, their control group was care as usual [60].

5.1.2 Repeated measures/QEDs

Thirteen of the reviewed studies employed QEDs. Two studies [52, 57] employed a within-subjects, repeated measures QED, with non-equivalent controls (non-carers). The remaining eleven studies employed a QED with pre and post-test within-subject, repeated measure evaluations of the targeted intervention, without control or comparison groups [31, 33, 39-41, 46, 48, 53, 59, 62].

5.1.3 Follow-up assessments

Nine of 17 included studies conducted follow-up measures. Eight of the studies carried out follow-up assessments within roughly three months of the intervention end [31, 39-42, 45, 50, 55, 59]. Neece (2024) [56] was the only included study that assessed participant outcomes at both 6- and 12-months post-intervention, as well as immediately post-intervention. Eight studies only assessed outcomes immediately post-intervention [24, 46, 48, 50, 52, 53, 57, 60].

5.2 Outcome measures

All included studies reported use of validated, reliable measures. For this review, only measures relating to parental wellbeing, psychological outcomes, stress, and intervention specific measures are included. Twenty measures were used across the included studies to measure parental wellbeing, stress or psychological outcomes, full details can be viewed in Table 1. The most popular measures included The Parental Index or Distress subscale of the Parenting Stress Index-4, Short Form [33, 42, 48, 52, 53, 56, 59], the Depression Anxiety Stress Scales (DASS-21) [40-42, 55, 60], and The Beck Depression Inventory–II (BDI) [31, 39, 60].

There were four measures employed across studies to measure ACT specific processes, these were The Acceptance and Action Questionnaire-9 [AAQ-9; 63] the Cognitive Fusion Questionnaire [64], the Values Living Questionnaire [VLQ; 65] and the Parental Acceptance Questionnaire [6-PAQ; 66]. Two compassion measures, the Self-Compassion Scale [SCS; 67] and the Self-Compassion Scale- Short Form [SCS-SF; 68] were employed. A further four measures of mindfulness specific processes were used, the Five Facet Mindfulness Questionnaire-15 [FFMQ-15; 69] the Freiburg Mindfulness Inventory [FMI; 70], the Mindful Attention Awareness Scale [MAAS; 71], and the Bangor Mindfulness Parenting Scale [BMPS; 72]. Multiple studies used validated measures in different languages, this included validated translated versions, and validated original language measures, four studies used validated

Spanish measures [39, 45, 52, 62], one describe validated Arabic measures [57], and one utilised valid Japanese measures [46].

5.2.1 Psychopathology measures

Of the seventeen included studies described, only eight studies explicitly stated exclusion criteria relating to parental psychopathology, or prior or concurrent psychological interventions. One study excluded parents with PTSD, psychosis, and substance disorders [50], one excluded parental psychosis, substance disorders, and active suicidality [56], and another also excluded parents with psychosis [39]. In terms of exposure to interventions, three studies [42, 46, 60] required no prior experience of ACT, and Bellone (2023) [50] reported that only 1/13 participants had prior experience of mindfulness. Only one study mentioned psychotropic intervention, which required participants to have had no change in psychotropic medication for 6 months [24]. Two studies excluded participants concurrently receiving psychological treatment [45, 56], whilst another reported that 2/13 participants received ongoing psychological intervention [50].

5.3 Table 2: Sample characteristics

Study	Exclusion	Recruitment setting/ compensation	Participant characteristics: number, mean age, race etc
Bellone et al (2023). USA. [50].	**Inclusion:** Parent of child with ASD diagnosis English speaking Received care at service clinic **Exclusion:** Psychotic disorder, post-traumatic stress disorder, alcohol use disorder, substance use	Sixteen participants were recruited via word of mouth (e.g. during appointments) as well as by flyers in common areas of a paediatric specialty clinic for people with developmental disabilities. Of the 16 parents who expressed interest, 13 signed consent and met inclusion criteria. No compensation for participants stated.	*n*=13 (12 mothers, 1 father) Mean age= 43.1 years (range 35–56 years) Race/Ethnicity: • 10/13 White • 3/13 Hispanic Psychological intervention: • 2/13 receiving additional psychological support (one individual therapy, one pharmacological and therapy intervention). • 12/13 had no prior experience of mindfulness Child age: 7 to 18 years (average= 10.9 years).
Blackledge & Hayes (2006). USA. [31].	**Exclusion:** Non-English speaking	20 participants in the study were recruited from 3 different geographical regions (the areas surrounding Reno, Nevada, Sacramento, California, and San Francisco, California). English-speaking parents with autistic children were emailed written descriptions of the proposed intervention along with an invitation to participate. There was no attempt to reach only clinically distressed parents, and the intervention was not presented as therapy. Rather it was presented as a supportive, sharing experience that might help parents better cope with the challenges and stress of raising a child diagnosed with autism. No compensation for participation was received.	*n*=20 (15 mothers, 5 fathers) Mean Age 42.85 (range 25-66) Race/Ethnicity: • 12/20 White • 6/20 Hispanic • 2/20 Asian/ Pacific islander Marital status: • 19/20 parents in long-term relationships • 10/20 were married couples Education: • 7/20 high school education • 11/20 college education • 2/20 advanced degrees • 20/20 only one autistic child Participants had an average of 2.25 children (ranging from one to six children).

Study	Exclusion	Recruitment setting/ compensation	Participant characteristics: number, mean age, race etc
Cañón et al (2023). USA. [39].	**Inclusion criteria:** Hispanic Immigrant Spanish-speaking caregiver Being the primary caregiver Residing within the Regional Center catchment area Ability to travel to the workshop. **Exclusion:** Caregivers experiencing psychotic symptoms	Caregivers were recruited via a Regional Center in California: sixty caregivers of children eligible to receive autism services from the Regional Center were invited by postal mail to participate in the study. No compensation for participation was received.	*n*=15 (15 mothers) Mean age= 39.6 Race/Ethnicity: • 15/15 Hispanic Marital status: • Married- 12/15 • Single- 3/15 Mean number of children 2.81 Education level: • Elementary school 8/15 • Middle school 4/15 • High school no diploma 3/15
Curl & Hampton (2024). USA. [53].	None stated	The participants were recruited through several autism-focused organisations and research labs in central Texas. No compensation for participation was received.	*n*=9 (9 mothers) Age: not stated Ethnicity/race: • Asian, non-Hispanic 1/9 • Black, non-Hispanic 1/9 • White, non-Hispanic 2/9 • Hispanic 5/9 Education: • Some college 2/9 • College graduate 4/9 • Graduate school 3/9 Employment status: • Not employed 3/9 • Employed part-time 2/9 • Employed full-time 4/9 Household income (in US$): • 50,000–100,000 5/9 • 100,000–150,000 2/9 • 150,000–300,000 2/9 Family size • One child with autism 3/9

Study	Exclusion	Recruitment setting/ compensation	Participant characteristics: number, mean age, race etc
			• 2 or more children, 1 with autism 5/9 • 2 or more children with autism 1/9
Fernández-Carriba et al (2019). USA. [24].	Inclusion criteria: Parent of a child with autism Having no change in psychotropic medication within the previous six months.	Participants were recruited with flyers announcing a program of "stress-reduction training". The word "meditation" was not employed in the flyer to circumvent confounds such as self-selection bias or prejudice. Instead, the term, "Cognitive Training" was used. Flyers with information about the study were distributed at an Autism Center and autism-related social media or handed out directly by the Center's Care Coordination personnel. No compensation for participation was received.	*n*= 15 (12 mothers, 2 fathers- demographics for 14) Mean age= 45 +/- 5.9 yrs Race/Ethnicity: • White- 7/14 • African American, Asian or Hispanic 7/14 Marital Status: • Single parents- 3/14 • Married- 11/14 Family • 11/14 had one child with additional needs • 2/14 had 2 Child diagnosis: • 14/15 ASD • 1x FASD (excluded from analyses)
Fung et al (2018). Canada. [40].	Inclusion criteria: Mothers of school-age children with autism (i.e. age < 22 years) Proficiency in English Exclusion criteria: Parents of children with autism who had yet to enter school Parents of children who did not have a formal autism diagnosis	Participants were recruited from autism service organisations across the Greater Toronto Area (GTA), Canada through flyers. Participants received an honorarium to support childcare and transportation costs.	*n*= 29 (29 mothers) Mean age = 44.8 (range 26-59 years) Race/Ethnicity not stated Marital status: • Single-8/29 • Married- 21/29 Age of children ranged 3-20 (mean=10.4 years, 24/29 Male)

Study	Exclusion	Recruitment setting/ compensation	Participant characteristics: number, mean age, race etc
Hahs et al (2019). USA. [60].	None stated	Participants that lived in a Midwestern American area were recruited via a parent contact list provided by colleagues of the first author at the school district where the participants' children attended and received Applied Behaviour Analysis (ABA) therapy. All of the participants' children received ABA therapy between 150 and 300 min per week. No compensation for participation was received.	*n*=18, *n*=9 in intervention condition **ACT group demographics:** 7/9 Mothers Mean age: 43.8 (range 37-51 years) Race/Ethnicity: • White- 6/9 • African American- 2/9 • Other- 1/9 Marital Status: • Married- 7/9 Education: • High school- 3/9 • College- 2/9 • Graduate school- 4/9 Child age range 5-12 (mean 8.4 years)
Hwang et al (2015). Australia. [48].	Not stated	To recruit participants, information about this project was advertised and circulated through the websites of Department of Education Queensland, Department of Communities, Child Safety and Disability Services, Autism Queensland, Autism Centre of Excellence in Griffith University, local psychologist networks and MBSR networks in Brisbane, Queensland. No compensation for participation was received.	*n*=6 6/6 Mothers Mean age= 40.5 (range 34-48 years). Race/Ethnicity not stated. "Varied qualifications"
Lobato et al (2023). Spain. [45].	Inclusion Criteria: Over 18 years old Not currently receiving psychological treatment Fluent in Spanish Having a child diagnosed with a neurodevelopmental disorder or intellectual disability.	Twenty parents were recruited through a non-governmental organisation for those affected by neurodevelopmental disorders in the region of Madrid, of whom 10 were assigned to the intervention condition and 10 to the control condition. Convenience sampling was carried out based on the availability of participants. No compensation for participation was received.	*n*=14 (11 mothers, 3 fathers) Mean age= 41.2 years (SD = 7.5). Average of 1.4 children (SD = 0.6), with the mean age of 11.9 (SD = 2.1). All children had a diagnosis of autism spectrum disorder: With an intellectual development disorder and mild or no functional language impairment (55%: 30% assigned to intervention condition, 25% assigned to control condition) Functional language impairment (30%: 10%intervention condition, 20%control condition) No functional language (15%: 10% intervention condition, 5% control condition).

Study	Exclusion	Recruitment setting/ compensation	Participant characteristics: number, mean age, race etc
Lunsky et al (2021). Canada. [41]	Inclusion Criteria: Access to a computer, tablet or smartphone.	Participants were recruited through local autism service e-newsletters, website postings, and advertisements shared through social media (e.g., Twitter, Facebook). Parents received a small honorarium of 15 dollars after completing the follow-up measures.	*n*=39 (35/39 mothers, 4/39 fathers) Mean Age = 52.68 (SD 6.87) (range 36-67 years) Race/ Ethnicity not stated Marital Status • Not married (single, separated/divorced, widowed) 13/39 • Married 26/39 Language spoken at home • English 35/39 Age of child range 16–39 (Mean 20.92, SD 5.32). Gender of child • Female 10/40 Additional child diagnoses • Genetic disorder 2/40 • Psychiatric disorder 22/40
Lunsky et al (2018). Canada. [59].	Inclusion Criteria: All mothers with children of age 3 to 21 with a diagnosis on the autism spectrum Sufficient English proficiency	Participants were recruited through local autism service agencies and autism family organisations in a large urban setting and surrounding areas. Mothers were recruited for this intervention through information flyers distributed electronically by various organisations in the region providing autism services, and interested participants were invited to contact the research coordinator by telephone or e-mail. Participants received 50 dollars (Canadian) to support childcare and transportation costs, as well as 50 dollars (Canadian) honorarium for questionnaire completion at the three time points.	*n* = 29 (29 mothers) Mean Age= 44.76 (SD 6.86) (range 26-59 years) Marital Status • Not married (single, separated/divorced, widowed)- 8/29 • Married- 21/29 Language spoken at home • English- 24/29 Born in Canada • Yes- 16/29 Another child with ASD • Yes- 11/29 Age of child range 3–20 (Mean 10.40, SD 4.36) Gender of child • Male- 33/40 • Female 7/40 Diagnosis • Asperger syndrome 5/40 • High functioning autism 10/40 • PDD-NOS 2/40 • Autism 23/40

Study	Exclusion	Recruitment setting/ compensation	Participant characteristics: number, mean age, race etc
Maughan et al (2024). Canada. [42].	Inclusion Criteria: Provision of documentation of child's autism diagnosis Ability to speak English Ability to identify therapy goals No prior exposure to ACT	Participants were recruited from postings on websites of child autism community agencies, autism service e-newsletters, and referrals from the community between January-November 2019. No compensation for participation was received.	*n*=54, Treatment *n*=27, Waitlist *n*=27 **Treatment demographics** 24/27 Mothers, 3/27 Fathers Mean Age= 47.11 (SD 7.66) (range 36-66 years) Marital Status • Married- 19/27 • Single/ divorced/ separated- 8/27 Current individual/group/family therapy • Yes- 8/27 • No- 10/27 • Missing- 9/27 Race/Ethnicity • Chinese- 2/27 • Black- 1/27 • White- 20/27 • Hispanic- 1/27 • Prefer not to say/ Other- 3/27 Education: • High school graduate- 1/27 • Graduated college- 6/27 • Some university- 2/27 • Graduated university- 10/27 • Post-graduate degree- 8/27 Household income (CAD) • <$50,000- 2/27 • $50,000–$99,999- 8/27 • $100,000–$149,999- 5/27 • ⩾$150,000 10 (37.0%)- 10/27 • Prefer not to answer- 2/27 Children age range 3-34 (Mean=15.07, SD 7.92) • Female- 7/27
Neece et al (2024). USA. [56].	Inclusion Criteria: Child community ASD diagnosis—or waitlisted for a community ASD	Families were recruited through the community from September 2018 to March 2021. Families were primarily recruited from the Inland Empire Regional Center, which is a government agency that contracts services for individuals	*n*=117, MBSR Group *n*=59, Control (psychoeducation group) *n*=58 **MBSR Group** 54/59 Mothers, 5/59 Fathers

Study	Exclusion	Recruitment setting/ compensation	Participant characteristics: number, mean age, race etc
	assessment Child age 3 to 5 years Ability to complete study procedures in English Exclusion Criteria included: Active parental psychosis, substance abuse, or suicidality Parent participation in an auxiliary mental health treatment or support group at the time of randomisation child motor impairment that would prevent participation in the parent	with developmental disabilities. Additional recruitment was completed through participating universities, community disability groups, local agencies that provide services for autistic children, local preschools, and community events for families of children with developmental disabilities. No compensation for participation was received.	Mean Age= 34.6 (SD 7.54) Race/Ethnicity: • White- 12/59 • Hispanic- 32/59 • Black- 3/59 • Asian- 2/59 • Other- 2/59 • Multiracial- 8/59 Education: • High school or lower- 18/59 • Some college- 13/59 • Technical degree- 11/59 • Bachelor's degree- 8/59 • Graduate degree- 8/59 Marital Status: • Married- 33/59 • Living together- 9/59 • Separated- 2/59 • Divorced- 1/59 • Widowed- 1/59 • Single- 13 Annual gross family income • <$30,000- 15/59 • $30,000–<$50,000- 11/59 • $50,000–<$70,000- 9/59 • $70,000–<$90,000- 8/59 • >$90,000- 16/59 Primary home language • English- 54/59 • Other- 5/59 Child mean age= 4.37 (SD 0.88) Child gender: • Male= 46/59 • Female= 13/59

Study	Exclusion	Recruitment setting/ compensation	Participant characteristics: number, mean age, race etc
Rayan & Ahmad (2016). Jordan. [57].	Inclusion Criteria: Arabic-speaking and literate Have a phone and an audio compact disc (CD) player or smart telephone to play the audio directions.	Parents of children with ASD who participated in the study were recruited in coordination with seven centers that are serving children with mild and moderate ASD, in addition to three centers that are serving children with severe ASD in Jordan. No compensation for participation was received.	*n*=104, Intervention Group *n*=52, Comparison Group *n*=52. **Intervention Group Demographics** 15/52 Fathers, 37/52 Mothers Education: • Less than high school- 6/52 • High school- 15/52 • Diploma- 15/52 • University- 16/52 Family monthly income • >425$ 10/52 • 425–705$ 19/52 • 706–1130$ 11/52 • >1130$ 12/52 Number of children at home • 1- 2/52, 2- 15/52, 3- 16/52, 4- 11/52, 5- 5/52, 6- 1/52, 7- 2/52
Rojas-Torres et al (2023). Spain. [62].	Inclusion Criteria: Children under 12 years of age (primary school age) with a diagnosis of ASD, without associated intellectual disability Participating parents to live with the child(ren)	Parents were recruited from a call for participation made to all members of ASPAU (Asociación Proyecto Autismo de Valencia). No compensation for participation was received.	*n*=10, Group A *n*=5, Group A *n*=5, **Group A demographics** 5/5 Mothers Mean Age= 39.83 (SD 2.48) (range 37-43 years) Child Age 3-12 (Mean= 5.33, SD 0.63) **Group B demographics** 4/5 Mothers, 1/5 Fathers Mean Age= 40.00 (SD 5.10) (range 33-46 years) Child Age 4-10 (Mean= 6.90, SD 3.10) "The participants belonged to a medium social economic stratum, with medium and higher education level, and lived with the child with ASD and his or her spouse."

Study	Exclusion	Recruitment setting/ compensation	Participant characteristics: number, mean age, race etc
Ruiz-Robledillo et al (2015). Spain. [52].	Inclusion criteria: Being a first-degree relative of an individual with a clinical diagnosis of an ASD (all participants were in fact parents of the care recipient) Inclusion for control: Having healthy offspring with no chronic illnesses and not having been caregivers to any ill relative or exposed to other chronically stressful situations in the previous 2 years.	Caregivers were mainly recruited from members of an association of relatives of people with ASD. No compensation for participation was received.	n=13, caregivers n=6, non-caregivers control n=7 **Caregiver demographics** 5/6 Mothers, 1/6 Fathers Mean age= 44.33±5.24 Education: • Basic- 1/6 • Advanced- 1/6 • University- 4/6 **Non-caregiver demographics** 7/7- Mothers Mean age= 48±2.70 Education: • University- 7/7
Uramoto et al (2023). Japan. [46].	Inclusion criteria: Being a resident of Japan Speaking Japanese as a primary language No previous experience of receiving ACT Owning electronic devices No previous service from the experimenter Currently receiving ABA service.	All participants were recruited from an agency located in Tokyo, Japan. No compensation for participants received.	*n*=4 All Japanese mothers No other demographics collected

5.3.1 Sample formation

In terms of child eligibility for parents to partake, the vast majority (*n*=14) of those included simply required parents to have a diagnosed autistic child of any age. Fung (2018) [40] recruited mothers of autistic children under the age of 22, Lunsky (2018) [59] recruited parents of autistic children aged 3-21, Neece (2024) [56] required autistic children to be 3-5 years old, and Rojas-Torres (2021) [62] recruited parents of autistic children under 12. In terms of language requirements, six studies specified criteria for speaking English [31, 40, 42, 50, 56, 59], Cañón (2023) [39] required Spanish fluency, Rayan and Ahmad (2016) [57] included Arabic speakers only, and Uramoto (2023) [46] required Japanese speaking mothers. Most included studies recruited eligible participants through local autism support organisations, this was mostly done through word of mouth, flyers, emails and social media. Only Hahs and colleagues [60] recruited via a contact list of their local school district, they additionally recruited those concurrently receiving applied behavioural analysis (ABA) support. Only three studies offered any financial compensation to participants, Fung (2018) [40] offered an honorarium to cover childcare and transportation costs, Lunsky (2021) [41] offered $15 CAD, and Lunsky (2018) [59] received a total of $100 CAD.

5.3.2 Participant characteristics

Characteristics of all participants can be viewed in Table 2. In summary, the majority of participants were mothers (92%); the remaining participants were all fathers. This is not surprising given significant evidence that mothers are often primary care givers of autistic children [92], and therefore often experience increased psychological distress. In studies that reported ages, the mean age of parents varied from 34-53 years, and child mean ages varied from 7-21 years. Those that reported marital status, showed that most participants were married. Overall, studies that reported race and ethnicity had somewhat diverse participants

(demographics for intervention conditions only were included), 40.5% of participants were White, 36.5% of participants were Hispanic, 4% were Black/ African-America, 6.5% were Asian/ Pacific Islander, 5% were Multiracial, and 7.5% were "other", non-specified, or grouped under non-White. Eight studies did not report participant race or ethnicity.

6.0 Analysis of treatment effect

As mentioned earlier, included studies were RCTs and QEDs. A range of outcomes were found, though not all demonstrated significant improvements as targeted by interventions. Due to RCT designs more robustly controlling for extraneous variables and alternative explanations for effects than QEDs, they will be described independently. To evaluate RCT treatment effects, effect sizes were collated and calculated, and significant results of QEDs are also reported in Table 1.

6.1 Results

6.1.1 Results of RCTs

Overall, across the four included RCTs, test interventions outperformed control conditions across modalities. Only three studies could be assessed in relation to effect sizes, two studies demonstrated large treatment effects of ACT [45, 60] and one showed mostly medium effect sizes [42]. ACT interventions demonstrated large treatment effects, demonstrated by improvements in parenting stress [d=0.76, 45], depression [d=1.01, 60], acceptance [d=0.94, 60], personal values [d=1.1, 60], cognitive fusion [d=0.83, 60] 0.83, and mindfulness [d=1.29, 60].

The effect sizes of Neece (2024) [56] could not be presented in Table 1, as the authors did not report mean group differences, or effect sizes. Rather, to describe the effects of their MBSR group in comparison to PE groups, the authors described a predictive model comparing parental

distress between groups at baseline, post-treatment and follow-up. Overall, both MBSR and PE were evidenced as significantly reducing parental stress at post-treatment, 6-month and 12-month follow-up. The effects were stronger for the MBSR condition, however this was not a statistically significant difference.

Both Lobato (2023) and Maughan (2024) completed 3 month follow-ups, which reported both medium and large effect sizes of ACT interventions maintained at follow-up. Reductions were evident in parental distress [d=1.44, 45], depression [d=0.64, 42], acceptance [d=0.84, 45], and genera health [d=0.54, 45].

6.1.2 Results of QEDs

The outcomes of QED designs can be seen in Table 1. Overall ACT groups demonstrated post-intervention improvements in parental stress [p=0.046, 53], depression 0.006 [p=0.006, 31], anxiety [p=0.006, 39], acceptance [p<0.00139, 40], mindfulness [p=0.007, 53], cognitive fusion [p=0.001, 40], personal values [p=0.001, 40], and self-compassion [p=0.03, 53]. Uramoto (2023) [46] reported the individual outcomes for their four participants, and results indicated significant improvements in acceptance in two participants, and a significant improvement in specific wellbeing domains across two participants.

Mindfulness and compassion interventions showed post-treatment improvements in parental stress [p=0,003, 24], acceptance [p=0.019, 24], satisfaction with life [p=0.002, 55], and mindfulness [p=0.004, 24]. MBI outcomes demonstrated improvements post-treatment in psychological health [p=0.001, 57], mindfulness [p=0.001, 41], anxiety [p=0.003, 52], mood [p=0.012, 52], anger [p=0.038, 52], general health [p=0.02, 52], depression [p=0.042, 52], self-compassion [p=0.006, 41].

7.0 Critique of research and recommendations

7.1 Research design

RCTS are typically seen to be the gold standard for researching intervention effectiveness [93]. In comparison, QEDs are less robust in their control over extraneous variables and alternative explanations, and therefore their findings are limited in their exploration of treatment efficacy. In this review, only four studies adopted an RCT design, and 13 were QEDs, to improve the reliability and robustness of research in the efficacy of third-wave interventions for parents of autistic children, researchers should strive to use RCT designs.

7.2 Power of studies/ reporting effect sizes

Of the four RCTs included, only two reported effect sizes. The effect sizes of another were calculated using reported outcomes. A further study did not report the necessary outcomes for the effect sizes even to be calculated. In terms of QEDs, five of thirteen studies made no reference to effect sizes, or power calculations. Effect sizes are important for informing readers of the magnitude of treatment efficacy or differences [94], and therefore researchers within this field should aim to design studies with power in mind, and effect sizes should be reported.

7.3 Outcome measurement

One study [52], included a measure of stress biomarker cortisol, which provided correlational support to their self-report measures. However, the other sixteen included studies relied solely on self-report measures. Though all measures used were validated and reliable, the studies acknowledged the limitations of these types of outcome measures. To improve the reliability and validity of measures used by studies, stress biomarkers or other physical measures could be used, as well as clinical interview or observational measures. Follow-up data collection is also important to inform understanding of the longer-term impact of interventions. In this

review, only nine studies completed any follow-up within 3-months, and only one at 6 months and then 12-months post-treatment.

7.4 Sample formation and generalisability

The majority of studies recruited participants through autism support organisations and services. While such organisations are available to all individuals with children diagnosed autistic, it is known that certain demographics, such as minority ethnicities and those of lower social economic status are less likely to gain access to such services, due to factors such as practical access, finances, and lack of trust in services. As discussed, 92% percent of the samples used were female, the majority of these were middle-aged, and most were White or Hispanic. It is unlikely, therefore, that the findings of these studies will be generalisable to men, younger or older women, or to many people of under-represented ethnicities, for example Black, Asian and Native populations. Furthermore, 76.5% of included participants were married, and only 3 studies offered any financial compensation meaning it is likely that lower social economic status parents or single parents may not have been able to participate. It is vital for future research to prioritise increasing the diversity of samples and to consider factors that may impact an individual's ability to participate.

Furthermore, as detailed earlier, only three studies screened for and excluded specific mental health diagnoses in the parents; only one asked about psychotropic medication, and four reported, or excluded, concurrent therapies undertaken by parents. Given the increased burnout and psychological distress experienced by parents of autistic children, it seems important that other mental health difficulties should be explored more broadly across samples to understand the role specific mental health presentations may have had on intervention outcomes.

8.0. Discussion

Autism is a neurodevelopmental disorder that is being increasingly recognised and diagnosed [2] and is associated with behaviours that may be challenging for parents to cope with. As a result, parents of autistic children are more prone to a variety of negative psychological outcomes including depression, anxiety, and parental distress. The bidirectional relationship between parental wellbeing and autistic child behaviours has been recognised, and research has started to focus on interventions targeting the psychological wellbeing of parents of autistic children. Third-wave interventions are potentially particularly useful to this subgroup of people due to explicit focus on processes such as acceptance, awareness, values and meta-cognition. However, due to the small number of studies, RCT and replicated research in this area, existing research cannot yet endorse the use of third wave therapies in supporting the psychological health of parents of autistic children.

The primary aim of this systematic review was to explore the efficacy of third-wave interventions in reducing psychological distress in parents of autistic children. To answer this question, a search strategy was developed to capture third wave intervention research in such parents, though only three intervention types were found and included in this review: MBIs, ACT and MBSC. Overall, studies demonstrated significant reductions in distress, depression, and anxiety, as well as improvements in wellbeing, and intervention specific processes such as acceptance, self-compassion, and mindfulness. Most included studies were a QED design and many supported the efficacy of the interventions, with significant reductions in parental distress post-intervention. Four RCTs were included, and for those with effect sizes available, large effect sizes were observed.

The second aim of this review was to explore any factors that mediated the efficacy of third-wave interventions in this population. Within the review findings, group delivery format and

duration of intervention appeared to have a non-significant mediatory impact, with positive outcomes being found across workshop and weekly delivery, and across overall delivery time. Beyond this, due to heterogeneity across studies a full synthesis of possible mediators was not possible. Only 8 reviewed studies included information relevant to participant psychiatric diagnoses or concurrent medication and therefore the relevance to clinical and non-clinical levels of distress within the population could not be explored. Furthermore, though many studies included information relevant to marital status, and implied social support, many did not explicitly collect information relevant to wider social support, a factor previously associated with mediating parental distress [11]. Additional possible mediators not available for full synthesis within this review include intervention facilitator experience, parental income, and number of children within households (both with and without autism).

A limitation of this review is the heterogeneity in research designs and interventions, which impairs the capacity for drawing direct comparisons. In addition to the obvious differences between the type of interventions used, the variance between the intervention delivery type and duration was large, with some interventions running briefly within short-term workshops, while others ran weekly sessions over several months. However, the results indicated that any difference in the efficacy of interventions was not related to length of delivery, suggesting that parents of autistic children could benefit from both weekly and workshop interventions. Furthermore, all included studies delivered group interventions and it is therefore not possible to unpick the impact of the social support element on the intervention. For this, individual therapy cases would need to be cross compared to see whether the social support impacted psychological outcomes.

Another significant limitation of the current review relates to the search strategy procedure. In the current review, the search strategy excluded papers that were not available in full, from the databases used. This strategy was employed to ensure access to papers relevant to the topic,

however, due to its' implementation early into the search procedure, the volume of relevant papers missing is unknown. Furthermore, the included studies are additionally biased for their availability across the databases.

The current review did not exclude studies that examined third-wave interventions in parents of adult children. Though the vast majority of included studies recruited parents of children aged under 20, some studies reported ages of children up to 34. These studies were included to capture the breadth of studies available, within a relatively small pool of research, additionally, parents are likely to share a range of stressors for example stigma, emotional stresses, and advocacy responsibilities, irrespective of age. However, this inclusion also limits the review due to key differences in parental context and parenting stressors across the child's development, such as identification and behavioural concerns in childhood, and possible longer-term care and transition stressors in adulthood, in addition to social supports available at each stage. It is therefore possible that key elements of intervention focus may need to differ to meet differential needs across the lifespan, a nuance not captured by this review.

Few included studies considered clinically significant mental health diagnoses of parents. It is therefore mostly unknown as to whether parents had diagnosed mental health conditions, or whether they were receiving any concurrent pharmacological or psychological intervention. It would be beneficial for future research to account for these, to better understand the impact of third-wave interventions for parents of autistic children specifically, in clinical and non-clinical populations. Another limitation of the studies was the general lack of longer-term follow up. Around half of the included studies completed follow-ups within 3 months of the intervention, however only one completed follow-up at 12 months. Therefore, the efficacy of interventions cannot be properly evaluated, the one study that did include longer term follow did demonstrate improved effects over time and it would have been helpful to have observed possible effects across all studies.

As mentioned, only three types of third-wave interventions were included in this review and it would be interesting to explore the efficacy of other interventions in this population, such as compassion-focused or dialectical behavioural therapy. It would also be interesting to explore the impact of parental interventions on child behaviours and wellbeing. Some included studies did evaluate this however, exploration was beyond the scope of this review.

Overall, this systematic review has found that third-wave interventions are useful for reducing distress and improving the wellbeing of parents of autistic children. Given the increased distress these parents experience, the findings support the use of third-wave interventions to better support parents. Services with remits to support parents of autistic children should consider offering MBI, ACT or MBSC based groups. Future research should focus on conducting RCTs to better contribute to the evidence base and enable more concrete evidence of these interventions.

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Service Improvement Project

Improving clinician confidence and competency in adapting cognitive behavioural therapy for autistic clients in the Oxfordshire Early Intervention in Psychosis service.

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Proposed Journal: Early Intervention in Psychiatry

Rationale: This British journal publishes research that contribute to the theory, practice and evolution of early detection and intervention for a range of mental health disorders. It is hoped this journal would enable a wide audience. (Appendix D).

Abstract

Introduction

Oxfordshire and Buckinghamshire early intervention in psychosis services (EIS) aim to provide specialist support and assessment to individuals showing symptoms of psychosis for the first time.

Recent research identified up to 10% of those referred to Cambridge EIS were autistic or showed traits of autism (Treise et al., 2021), and a preliminary audit indicated that 31% of the Oxford EIS caseload has confirmed or suspected autism. Autistic individuals benefit from adaptations in the health care they receive (Cooper et al., 2018; Stark et al., 2022). Therapist competency in supporting autistic clients can mediate autistic people's outcomes. This project aimed to explore therapist confidence and competency in providing adapted therapy to autistic people within EIS.

Method

Eleven EIS therapists participated in an online survey, and eight participated in consequent focus groups. Survey data was presented using descriptive statistics, and a thematic analysis was employed to synthesise focus group discussions.

Results

Following the survey, therapists indicated need for improving competency in working therapeutically with autistic people. Two focus groups identified a range of strengths and areas for development in relation to offering best care and in increasing confidence in adapting therapy to autistic clients with psychosis. A thematic analysis synthesised group discussions and identified themes of Learning, Practice, and Clinical Complexity.

Conclusion

Recommendations were developed based on analysis results and were received well by the service, who agreed to action the recommendations, and routinely review the planned implementation of the agreed recommendations. Conclusions are discussed.

Keywords: Early intervention in psychosis, Early intervention services, Autism and psychosis, Autism, Psychosis, Therapist competence, Therapist confidence

Introduction

Psychosis, autism, and the current context

Psychosis refers to a series of symptoms related to losing touch with reality, during an episode of psychosis an individual may experience disrupted thoughts, behaviours, moods, and perceptions (National Collaborating Centre for Mental Health (NCCMH), 2014). In the UK approximately 0.5% of over 16s have diagnoses of psychotic disorders (NCCMH, 2014). Psychotic disorders are frequently categorised by positive symptoms, including delusions and hallucinations, and negative symptoms, including emotional blunting and low motivation. Early intervention in psychosis services (EIS) address the needs of people experiencing psychosis for the first time, or within three years of their first episode (NHS England, 2023).

Autism is a neurodevelopmental condition defined by difficulties across two main areas: restrictive and repetitive behaviours and social interaction. In the UK, approximately 1.1% of adults have autism diagnoses, this has increased more recently and is projected to continue increasing with improved identification and diagnosis (Brugha et al., 2012; Murphy et al., 2016). Autistic adults are more likely to be diagnosed with a mental health problem (33%) and experience lower life quality than non-autistic adults (Gadke et al., 2016; Murdoch et al., 2023).

Distinguishing autism and psychosis

Associations between autism and psychosis have been reported (Chisholm et al., 2015; De Crescenzo et al., 2019) and evidence indicates frequent under identification of autism in psychosis (De Crescenzo et al., 2019). Cognitive features of psychosis and of autism, along with neuroimaging data and genetic studies, are suggestive of overlap between these conditions. Psychosis and autism are highly comorbid, in a recent review, traits of autism among those with psychosis varied from >1% to 52%, (Chisholm et al., 2015; De Crescenzo et

al., 2019). Up to 35% of autistic people show psychotic traits (Kincaid et al., 2017), negative traits are particularly associated, including catatonia and blunted affect. Complexities in distinguishing autism within psychosis complicate appropriate intervention provision. In EIS, a review identified 9% of the Cambridgeshire EIS caseload met criteria for an autism diagnosis (Treise et al., 2021). The authors recommend further investigation into the presentation of autism and psychosis (ASD-P) to inform detection and identification, mechanistic understanding, and intervention.

Autism and health

Autistic people face more barriers in accessing good mental health care than non-autistic populations despite being more likely to need mental health services during their lifetime (Murdoch et al., 2023; NHS England, 2019). Barriers include "inaccessible services and treatment which is more effective for non-autistic people than autistic people" (Murdoch et al., 2023), and may result in unmet health needs and poorer mental health outcomes.

Increasing service accessibility

In 2018, the Department of Health and Social Care (DOH) published the 'Think Autism strategy: governance refresh' which prioritised delivering mental health support adapted to autistic people's needs (Department of Health (DoH), 2018). Furthermore, the NHS long-term plan, and recent NHS guidance, outline aims to ensure mental health teams are accessible to autistic people by making appropriate person-centered, adjustments at all stages of service pathways (Murdoch et al., 2023; NHS England, 2019).

One such treatment within services is psychological therapy. There is growing evidence that psychological therapies, including CBT, are effective in reducing depression and anxiety in

autistic people, when appropriately adapted (Cooper et al., 2018; Russell et al., 2020). When autistic adults are offered unadjusted interventions, they may feel unable to engage with treatment and withdraw from services, or be mistakenly discharged for failing to respond to treatment (Adams & Young, 2021; Brede et al., 2020; Crane et al., 2019). When interventions are adapted to autistic people's needs, mental health outcomes improve (Cooper et al., 2018).

Clinician competence

Healthcare professional-related factors, for example the competence and confidence of the practitioner in working with and providing adaptations to autistic people, can mediate mental health outcomes in autistic people (Murdoch et al., 2023; NHS England, 2019). Cooper et al. (2018) observed associations between increased therapist confidence and better psychological outcomes for autistic people (Cooper et al., 2018). The EIS Access And Waiting Time Standards emphasise the need for appropriate workforces with the requisite skills and competencies (Gates & Killackey, 2020; NHS England, 2023), however, research indicates that first-line interventions of cognitive behavioural therapy for psychosis (CBTp) is under-offered, possibly related to lack of training (Jolley, 2018). Furthermore, clinical staff can experience low confidence in their ability to provide adapted therapy to autistic individuals (Cooper et al., 2018; Crane et al., 2019; Maddox et al., 2020).

This project

This service improvement project took place within the Oxfordshire EIS, encompassing Oxford and Buckinghamshire. EIS services comprise a range of healthcare professionals and provide specialist support and assessment to individuals aged 14-65 presenting with a first episode of psychosis.

The rationale for the project came from a preliminary service audit indicating 31% of the Oxford EIS caseload had confirmed or suspected autism (Treise et al., 2021). The project aimed to understand, and improve, the care offered to autistic people within the EIS through exploring therapist understanding of autism, and facilitators and barriers to therapist confidence in adapting evidence-based therapies for autistic people (Murdoch et al., 2023).

Questions to be addressed

1. What do therapists currently know about autism?
2. How confident do therapists feel in their knowledge and understanding of autism, and of adapting therapies for autistic people?
3. What factors may increase therapist competence and confidence in adapting therapies, specifically CBTp, for autistic people? What are the barriers?

Method

Design

A survey including validated questionnaires was used to elicit current therapist knowledge of, and competency in therapy adaptations for autism. The survey replicated the questions of Cooper et al. (2018), investigating core autism knowledge and including the therapist confidence scale adapted for autism (TCS-ASD). Focus groups further explored therapist experiences and improvement ideas, and enabled discussion and development of specific recommendations to improve competency within the psychology team.

The project was designed using the healthcare model of improvement (Edward et al., 2017), specifically, using questions from the 'discovery' model stage, to inform a future "Plan, Do, Study, Act" (PDSA) cycle.

Ethical Statement

The project was registered with audit management and tracking, Oxford Health Improvement oversee AmaT and recommended registration to review the need for a Data Protection Impact Assessment (DPIA), which was not needed.

Scoping and project development

The current improvement project was identified by EIS clinical psychologists. Before this project, the team began an audit of service data to identify the number of autistic service users (SU/s) across four categories: autism diagnosis, strongly suspected autism, suspected autism, and not autistic. This preliminary audit indicated 31% of the service caseload had diagnosed or suspected autism. The team then recognised the need for improving the accessibility of the psychology therapy offer for autistic people, aligned with NHS and NICE guidance (NCCMH, 2012; Murdoch et al., 2023).

Following this, meetings with professionals and a person with lived experience (PwLE), were held to further develop the project. Improving therapist confidence in adapting CBTp for autistic SUs within the EIS was identified as a service need.

Participants

Twelve psychological therapists working across Oxfordshire EIS participated in the project. Eleven participants completed initial measures, and eight therapists attended hour-long focus groups (4 therapists in each). All participants were female. For the survey, the professions of participants included; clinical psychologists, social workers, counselling psychologists, occupational therapists, and assistant psychologists. Within the focus groups there were clinical psychologists, social workers, occupational therapists, and assistant psychologists.

Procedure

We developed a survey of questions and validated questionnaires based on the methodology of Cooper et al. (2018). The survey explored pre-existing knowledge of, and confidence in providing adapted therapy for autistic SUs (see Table 1 and Appendices Ei-Eiv).

Based on survey outcomes and in collaboration with a PwLE we developed a range of open-ended questions to inform two hour-long focus groups. Focus groups were conducted by the lead researcher. Both focus groups (n=8) took place online, were audio recorded, and lasted 60 minutes.

Measures

Demographics

Therapists were asked for demographic information, profession, and therapy experience. Participants additionally reported their primary theoretical orientation, current caseload, and the prevalence of ASD within their current caseloads (see Appendix Ei).

Treatment approaches

Participants were provided with a list of 13 treatment approaches and techniques for working with autistic people and an open-ended 'other' option and were asked to select those used (see Appendix Eii). The list was developed with a clinical psychologist within the service, and included CBTp and family therapy.

Treatment adaptations

Following Cooper et al. (2018), participants were asked to select any adaptations they had previously made from a list of 14 adaptations treatment adaptions for CBT for autistic patients (see Appendix Eii). Adaptations included providing structure and supporting with processing verbal information.

Self-rated knowledge

Participants completed a 6-item self-rated knowledge measure used by Cooper et al. (2018), previously developed by Brookman-Frazee et al. (2012) (see Appendix Eiii). Participants self-rated their knowledge of domains of autism using a 5-point Likert scale (1- not at all knowledgeable; 5- extremely knowledgeable). The measure includes knowledge of autism core symptoms, impact on behaviour, and identifying progress. The measure has demonstrated good internal consistency ($\alpha = 0.95$). A mean self-knowledge score can be derived from averaging scores, where higher scores reflect greater self-reported knowledge.

Confidence

Participants completed the TCS-ASD (Cooper et al., 2018) (see Table 1), a 14-item tool that assesses therapist confidence in enacting therapeutic activities commonly used across therapy interventions. The TCS-ASD is adapted from the TCS (Dagnan et al., 2015), and uses a 5-point Likert scale (1- not confident; 5- highly confident). Items include understanding specific issues relevant to autistic clients and identifying therapeutic approaches that will be helpful to autistic SUs. The TCS has demonstrated good test-retest reliability (Dagnan et al., 2015) and the TCS-ASD has shown good internal consistency. An additional six questions were developed with specificity to the service and CBTp (see Appendix Eiv).

Focus Groups

Questions for focus groups were developed based on existing literature, survey responses, and in collaboration with a PwLE. The questions were semi-structured and open-ended to allow for thematic analysis (see Appendix F).

Participants were asked about confidence within the service, for example about available resources, what would increase confidence individually and service-wide, and what the barriers to neurodiversity competence were. Not all planned questions were asked in both groups due to tangential conversations that were still useful and relevant. Prompts were used to elicit further elaboration of thoughts, meaning, and experiences shared.

Data analysis

Descriptive statistics presented the initial survey outcomes. Thematic analysis, a method of identifying themes or patterns of meaning in qualitative data, was used to synthesise focus group data. As recommended by Clarke and Braun (2021), the analysis followed a six-step process and adhered to their suggested 15-point criteria of good thematic analyses. Data were transcribed by the lead researcher CTC (Clarke & Braun, 2021). The transcriptions were read multiple times, then initial codes and themes were created. To reduce bias risk, these were checked by LB and LJ alongside focus group extracts, and a PwLE member contributed to analyses and validation of the themes. Original transcripts were subsequently re-read to identify further codes or themes. These were regrouped as necessary, and themes were continually refined until final themes were generated. The PwLE contributed to the analysis and the development of recommendations, and agreed with how initial themes captured the data though offered suggestions for inclusive language.

Within thematic analysis, the researchers actively participate in the process and therefore their position is important to consider when interpreting themes. The analysis was carried out by CTC, a trainee clinical psychologist with familial experience of psychosis. CTC is not neurodiverse and had not worked therapeutically within this population or with the staff at the time of analysis. The analysis was supervised by LB and LJ. LB has clinical experience of working with people who have psychosis and of working with autistic people. LJ has clinical experience of working with psychosis and autism, and alongside autistic colleagues.

Patient and service user involvement

An autistic PwLE was consulted during the development of the project, including its aims, and the development of focus group questions. They additionally suggested thinking about how formulations could improve confidence in providing adaptations for CBTp, and offered advice on disseminating the outcomes of the improvement project. As discussed above, another PwLE was recruited to support during analysis and recommendation development.

Improvement initiatives and service impact

By assimilating survey outcomes and thematic analysis of focus groups, along with consultation with a PwLE, the Oxfordshire reasonable adjustments (RA) team, and with input from literature and NHS/NICE guidance, a series of recommendations were developed. The recommendations were shared with the service along with a project summary. The recommendations were well received by the service and plans to action these were discussed.

Results

Initial survey

Eleven psychological therapists within the service, from various professional backgrounds, completed the survey. The number of years of therapy experience ranged from 2-29 years (Mean=12.6 years, SD=8.86). Estimates of the percentage prevalence of autistic clients within a typical caseload ranged from 0-50% (Mean=24%, SD=17%).

CBTp was the most popular therapeutic approach, with 100% of professionals having used it (as recommended in the EIS Access and Waiting Time standards (NHS England, 2023)). In response to the knowledge of autism questionnaire (Cooper et al., 2018) using a 5-point Likert scale, individual therapists' average scores varied from 2 to 4 (Mean=2.98, SD=0.71). The team average ratings across each knowledge domain varied from 2.7 to 3.3 (Mean=2.98, SD=0.17; see Figure 1).

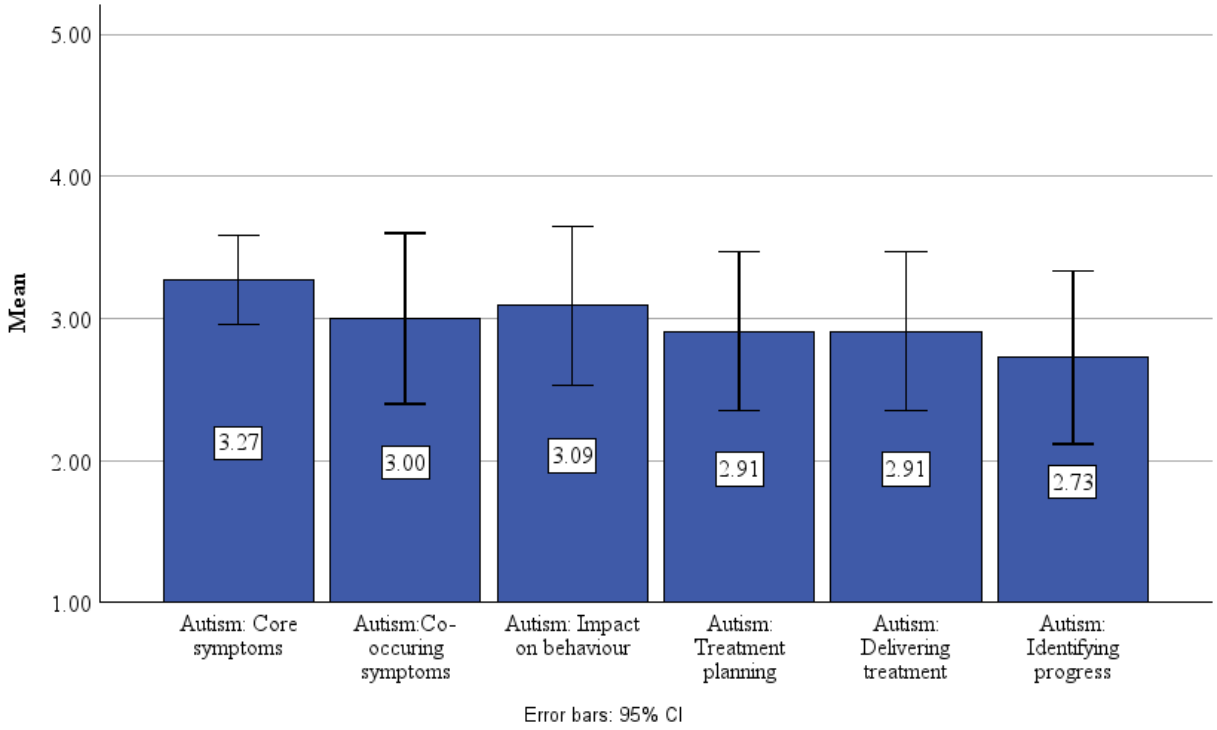

Figure 1: Mean Likert ratings of the autism knowledge questionnaire, across EIS therapists.

Therapists were asked about what adaptations they had previously used in therapeutic work with autistic clients. In response to the TCS-ASD (Cooper et al., 2018) using a 5-point Likert scale, across all

domains individual therapists' average confidence scores ranged from 2.16 to 4.15 (Mean=3.3, SD=0.59). For individual domains of confidence, the team's average scores varied from 2.9 to 3.9 (Mean=3.3, SD=0.25) see Table 1.

Table 1:EIS Therapists' TCS-ASD Questionnaire Outcomes.

TCS-ASD Confidence Domain	N	Minimum	Maximum	Mean	Std. Deviation
Be empathetic towards ASD client	11	3.00	5.00	3.9091	.70065
Understand specific issues related to having autism and their impact on a person's life	11	2.00	5.00	3.4545	.93420
Communicate with ASD client	11	3.00	4.00	3.6364	.50452
Develop a therapeutic relationship with ASD client	11	3.00	4.00	3.6364	.50452
Gather information from ASD client so their difficulties can be better understood	11	2.00	5.00	3.6364	.80904
Use assessments in a way that ASD client will understand	11	1.00	4.00	3.1818	1.16775
Explain results of an assessment process to ASD client	11	2.00	4.00	3.2727	.78625
Use knowledge about mental health issues in formulating problems of ASD client	11	2.00	4.00	3.2727	.64667
Help ASD client to identify issues that need to be considered in sessions	11	1.00	4.00	3.2727	.90453
Use knowledge of mental health interventions to work effectively with ASD client	11	2.00	4.00	3.2727	.78625
Identify therapeutic approaches that will be effective for ASD client	11	1.00	4.00	3.2727	1.00905
Work with caregivers and other important people in the lives of people with autism	11	3.00	4.00	3.3636	.50452
End intervention with ASD client in effective manner	11	2.00	4.00	3.0000	.77460

Thematic analysis

Qualitative data from focus groups indicated three primary themes: Learning, Practice, and Clinical Complexity, each with several subthemes (see Figure 2 for an overview and Appendix G for codes and example quotes).

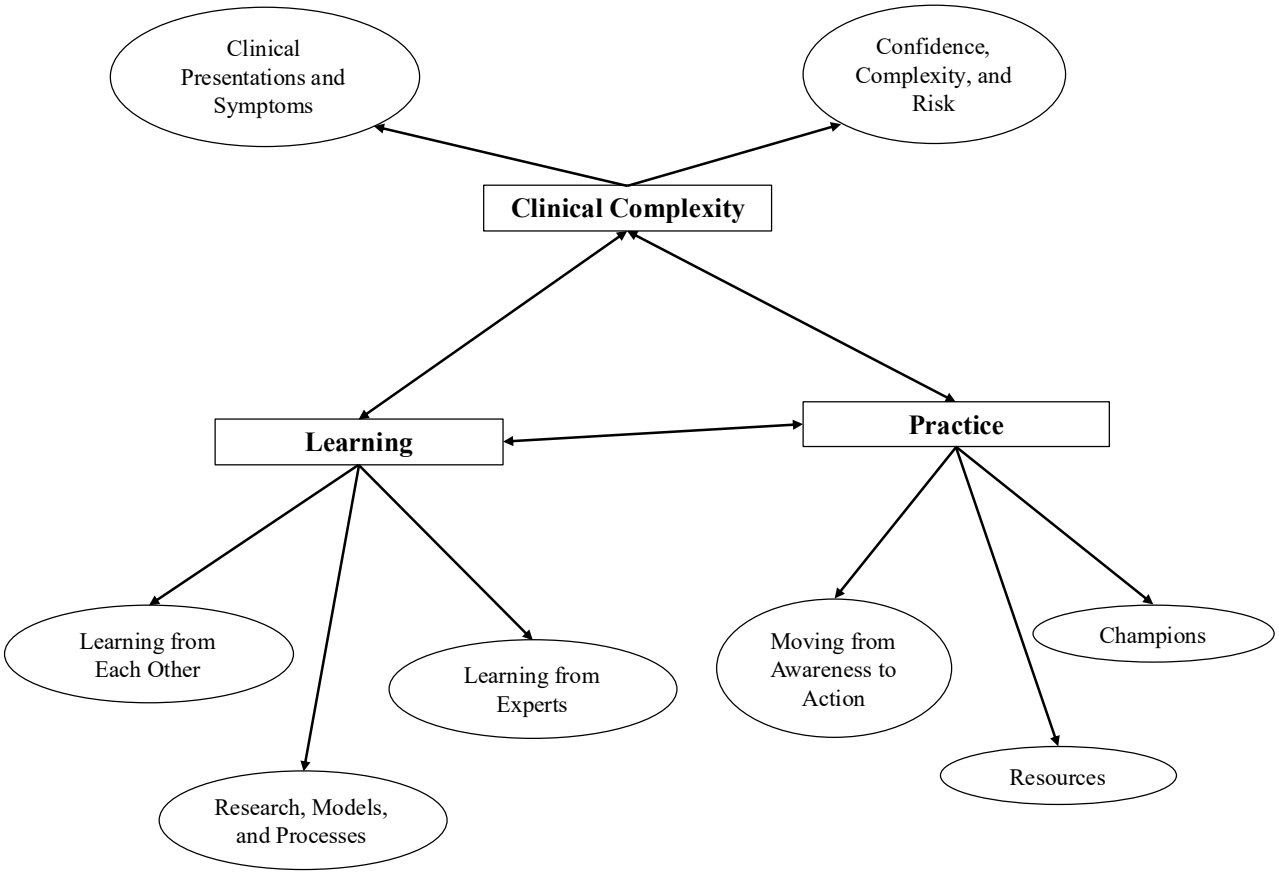

Figure 2: Mapping display of thematic analysis themes and sub-themes

1. Learning

Learning from each other. Learning from and with colleagues was frequently spoken of by therapists as a confidence facilitator. Therapists spoke of existing spaces that enable this, "we have CPD slots where we try to identify things that we want to know more about", and reflected on what made these spaces helpful, "we watched [a training video] together [which] gives us an opportunity as a group to talk about clients". The importance of slots for continued professional development and frequent individual supervision, in addition to informal spaces

such as multidisciplinary meetings and internal group supervision, was acknowledged. Therapists also raised the influence of team experts on individual competency and felt "lucky because [] has got expertise … they can give us training within the team". This was valued across settings "if there's a discussion at the MDT about somebody's complex case, she'll say let's try and formulate this".

Learning from experts. Therapists spoke of the importance of training and learning from externals with expertise in autism. It was also acknowledged that learning from "working practically with autistic people" increases competence in adapting therapy appropriately. Therapists mentioned hoping to receive training from autistic people and service users, and spoke about the role of personal experiences and competence. All therapists were aware of reasonable adjustments services (RAs), although there was some uncertainty about the roles of these teams.

Research, models and processes. Throughout focus groups the need for standardised processes, and ASD-P formulations and models were discussed. Therapists described different ways they approached therapy with autistic people "there are things that you would automatically ask a person that you knew had autism". At the same time, there was discussion of the need to be "accommodating to everybody … to ask everybody how we can make therapy work for you". Therapists spoke to the complexity of presentations and suggested the team "could have a checklist because you're having lots of things in mind". Another key topic was of the need to adapt existing formulations, "if you've got a Garrety formulation for psychosis, you need to say for each bit how the autism may impact".

2. Practice

Moving from awareness to action. Throughout discussions, particularly those relating to the theme of Learning, therapists said “you can have lots of training. It's about keeping it alive” and “embedding it in your daily or weekly role”. The role of conscious competence was also spoken about and that “awareness is the key or a starting point”. It was discussed that “generally there's more of an awareness” and that “we're aware that there's an increase of diagnosed autism” and this spoke to the need for the team to continue moving from conscious incompetence, i.e. being aware but not reflecting awareness in practice, to conscious competence.

Champions. The Buckinghamshire therapists spoke about the existing role of autism champions within the service and of their importance in keeping the team up to date with the latest guidance and recommendations. The role includes “arranging for somebody to come and speak to the team or give some feedback on latest things that are going on. They circulate materials in the team … they're the ones that link with the RA service and try to keep an eye on things”. Therapists valued sharing information and Oxfordshire therapists spoke to the need for establishing champions.

Resources. Access to resources was discussed frequently in relation to increasing competence. Therapists described the current resources that exist such as “slides and resources … available on teams for reference” and “the flexibility that we love in EI” to enable adaptations such as longer assessments. There was acknowledgement of lacking informational and physical resources that can be barriers to therapist competency. Therapists stated “we can be aware of… sensory needs and quiet environments... but actually, what have we got” referring to practical resources and therapeutic spaces. There was discussion around other resources that would improve therapist competency which included “worksheets that would be ASD friendly or ways of using CBT principles like homework, et cetera”, “a bit of money to

have things for people to try out like… pressure vests" and a "community resource… it would definitely help my confidence if I knew there were good things available in the community".

3. Clinical complexity

Confidence, complexity, and risk. Therapists described "over the years of working, we're getting more and more complexity" in relation to presentations and that "there's a lot to hold in mind, my confidence drops then… and it definitely seems on the increase". This sentiment was repeated and there was a sense of it feeling increasingly difficult to hold all aspects of an individual's identity in mind alongside various clinical presentations and mental health diagnoses. Therapists also spoke about how "people who aren't diagnosed, and even people who are, don't necessarily know what adaptations are helpful for them" and reflected on their role in this to "help them make those choices". Therapists additionally mentioned considerations and adaptations they may use in work with autistic clients "we offer to see people where they feel most comfortable" and barriers to this; "if you're not thinking about that or not knowing [if someone is autistic], you might get frustrated or you might get stuck, like your formulation or therapy".

Clinical presentations and symptoms. When reflecting on what increases their competence, therapists expressed hoping to gain better understanding of "different presentations… I think we probably know some, but we might miss others, and in different [cases]: men versus women, older, younger". Comorbidities and diagnosis were also discussed frequently with therapists describing challenges relating to "diagnostic overshadowing… it just becomes so complex and tricky to tease out".

Development of recommendations, with feedback from the service

Recommendations derived from the survey and thematic analysis outcomes, feedback from a service user, discussions with the Oxfordshire RA service, as well as from existing guidance and recommendations were developed (Murdoch et al., 2023). A checklist tool was created to ensure recommendations could be implemented and monitored by the psychology team. A summary of recommendations can be viewed in Table 2.

Table 2: Summary of recommendations to the service based on the project outcomes.

Recommendations to service
1. To allocate a professional(s) within the service to act as a neurodiversity Champion/ lead. *a. To develop role responsibilities for the neurodiversity champion. For the champion to forge relationships with the RA service. Able to be within the wider team, not specifically the psychology team.* *b. Role responsibilities may include to keep discussions of autism on the agenda across meetings and CPD slots, to circulate up to date research and guidance, to liaise with the reasonable adjustments team, to accumulate questions and areas of need from the team and seek training and/or consultation from RA service.*
2. To form connections with the reasonable adjustment (RA) team, other services and charities to consider options for bespoke training, supervision spaces, or support with individual cases. To prioritise training delivered by autistic people.
3. To become familiarised with reasonable adjustment resources on the intranet. *a. To make use of the variety of resources available, particularly the autism passport (recommended by RA service) to inform professional and patient understanding of autistic profiles, to inform reasonable adjustments.*
4. Consider how to determine if someone is autistic eg. make use of a screening tool and/or autism passport early in therapy to better understand an individual's presentation and to inform potential adaptations based on the individual's profile.
5. To retain a person-centred approach to each individual and to not assume specific characteristics, or profile, based on knowledge of autism alone. To develop a standardised checklist that may be used during assessment that encompasses potential elements of intersectionality to aid memory.
6. To develop, on an ongoing basis, a collaborative CBTp formulation and protocol with annotations of potential suitable adaptations at differing points of the formulation for autistic people.
7. Maintain practical resource database with details on resource locations.

a. *To include practical, online, and training resources available to practitioners. To consider space for requests for resources and/or training. To include circulated resources and research.*
8. To create a database to share anecdotes or learning from individual cases from clinicians. a. *To share examples of individual presentations and ideas for adaptations on a shared database that can be continually updated.* b. *To include spaces for questions that can be reviewed in CPD slots, or by the EDI panel or neurodiversity champion. Perhaps using Microsoft notes.*
9. To meet regularly as a psychology service to reflect and share learning on working therapeutically with diverse patients and intersectionality. a. *To share and reflect on adaptations and considerations made throughout an individual's pathway through the service to embed learning.* b. *To regularly reflect on where confidence could continually be improved, as a team, and to discuss options for addressing this ie. Training opportunities or CPD slots.*
10. To make use of measures such as the Therapist Confidence Scale for autism (TCS-ASD) for personal reflection or use in supervision. a. *To reflect individually on aims for confidence and to compare to current ratings. To consider more broadly what confidence means individually and to choose specific areas of focus.*
11. To use existing spaces in different ways to embed and develop learning to increase competence. a. *To consider using spaces for discussing new research, guidance, and recommendations, for reflecting on cases, for self-reflection, for specific skill growth (CPD/ training), and for wider management reflections on pathways through services and considering capacity for other projects and needs ie. audits.*
12. Creating a rolling agenda item to address clinical competency. a. *For this to be applied to a variety of meetings and spaces from individual/supervisory to service wide meetings to ensure continued conversation.* b. *To consider a system for more widely reflecting and checking in on projects and previous project outcomes and progress, perhaps 6 monthly or annually.*
13. Seek additional funding pots that could be used to fund practical resources such as sensory gadgets.
14. Record autism diagnosis, or suspected autism on psychological referral and intervention spreadsheets. a. *To support future audits and to further understand therapeutic outcomes of autistic people within the EIP.*

The survey outcomes, thematic analysis, and recommendations were presented to five therapists who provided verbal feedback and contributed to the implementation plan. The plan for rolling out included how the recommendations would be followed and stored, and how the audit tool would be used and monitored. The therapists were also encouraged to complete the TCS-ASD tool for their personal development. It was made clear that the EIS should continue to update and develop the recommendations over time. The therapists commented on the strengths of this as well as where they could be improved. Feedback was used to inform the final version of recommendations and checklist tool for the service (see Appendix H).

Discussion

This service improvement project investigated therapists' competence and confidence in adapting psychological therapies for autistic clients within Oxfordshire EIS. Outcomes from surveys, focus groups, and PwLE input collectively fed into the development of recommendations for the service, these were received well by the team and an implementation plan was co-developed. Research into therapist competency and adaptations for autistic people is relatively scarce and therefore the current project highlights important facilitators and barriers to therapist competence within EIS.

Firstly, therapists completed a survey relating to their knowledge and experience of working therapeutically with autistic clients. The survey highlighted moderate levels of therapists' autism knowledge, similar to the findings of (Corden et al., 2022), and disparity across professionals in their experiences and confidence in adapting psychological therapies for autistic clients. This reinforced the need for the project, to support professionals to gain confidence in their ability to provide appropriately adapted therapies to SUs and meet EIS and NHS standards (Murdoch et al., 2023; NHS England, 2023).

Therapists' discussions revealed novel and important insights into their confidence and acknowledged influencing factors across individual, service, and wider societal levels. Data saturation was reached in the second group and assessed in line with Clarke and Braun's (2021) recommendations, with focus on the richness and depth of meaning as opposed to frequency alone. Participants across groups echoed discussions relevant to their confidence and competence and access to resources, training, spaces to learn from each other, risk, and complexity. Though participants contributed insightful and unique perspectives, no entirely novel or unexpected themes or codes arose in the second group, and thus data saturation was deemed to be reached. Given the study aims of developing service level and practical recommendations, this level of saturation was judged to be sufficient for service-level improvement initiatives.

The thematic analysis of focus groups identified three themes: (1) Learning; (2) Practice; and (3) Clinical Complexity. One important topic within therapists' discussions of confidence facilitators was the role of learning from each other. Therapists valued spaces to share ideas, learning, and experiences, and spoke positively of the impact of these spaces on their confidence in adapting therapies for autistic patients. Similarly, therapists valued learning from experts and training, though did not view prior training opportunities as lacking, conversely to previous findings (Corden et al., 2022). Therapists acknowledged that learning from those with most experience, whether professionally or lived, was useful in instilling confidence in clinical work, and the need to involve PwLE in training development and delivery is endorsed (Gillespie-Lynch et al., 2022). Therapists equally discussed the importance of embedding theoretical learning and training into practice on an ongoing basis.

This theme of Practice linked with the theme of Learning, and was reiterated by many therapists where there was a sense that continual learning was wasted if not then consolidated practically. Therapists discussed existing ways they keep learning "alive", which included revisiting the

topic in meetings and supervision, but emphasised this as an area for development. The term "awareness" arose frequently throughout the interviews where therapists acknowledged that on individual and service levels, awareness of autism and necessary adaptations had been a prioritised topic. However, a PwLE highlighted that awareness is no longer viewed by many autistic people as good enough, and the need for moving towards action and acceptance was raised, a notion cited in literature (Dever, 2021).

The role of champions (Anderson, 2022) was also referenced within Practice and linked to previous narratives of therapists valuing expert input. One of the two participating services had existing autism champions. Champions were viewed as vital vessels to continual learning and applied practice, where their roles were described as sharing up to date guidance and research, keeping autism on agendas, and linking meaningfully with the RA service. The NHS model of autism champions details similar responsibilities (Anderson, 2022). The champions were valued greatly by therapists, during the analysis it felt they fell most comfortably into the theme of Practice, due to their role in supporting therapists to continually embed learning into practice, though it is notable that they link strongly with Learning subthemes of learning from each other, and from experts, and also with the sub-theme of research.

Therapists discussed staying updated with research and models and acknowledged the lack of existing psychological formulations and models of autism and psychosis. Therapists agreed that a comprehensive and collaborative formulation of the individual's presentation within the CBTp framework would benefit SUs and therapists. Therapists discussed the need for these clinically, and although these discussions sat within the learning from research sub-theme, they also linked to the sub-theme of resources within Practice. Resources were discussed at length by therapists across groups, where professionals spoke of existing therapy resources and those that were lacking. Environmental and practical resources were additionally raised, where the

flexibility of the service was viewed as a facilitator of confidence for allowing time to adapt therapy, and environment restrictions for therapy were viewed as barriers.

Both Learning and Practice connected to the final theme of Clinical Complexity. Here therapists' confidence was discussed in relation to identifying and distinguishing autistic psychotic presentations, and in terms of clinical complexity and risk. The discussions of presentations overlapped with conversations about staying updated with research, and the team spoke of the historical context of psychosis and autism (Ribolsi et al., 2022). Therapists valued discussing the challenges of understanding different presentations of autism across genders and the lifespan, in addition to difficulties arising from disentangling autistic traits from co-occurring mental health diagnoses. Clinical complexity and risk were mostly described as barriers to confidence by therapists. Therapists spoke of the increasing importance of holding multiple facets of an individual's identity and presentation in mind given the increased understanding within health services of the importance of these factors within a psychological formulation. Therapists recognised that complex presentations are increasing due to increases in service demand (Al-Haboubi & Oladimeji, 2022), and challenges in wider health system services, and such presentations were described as reducing therapist confidence. These discussions linked to conversations of learning from each other, where team spaces to discuss complexity were valued.

The focus group outcomes were discussed with a PwLE who offered feedback on the themes and potential solutions. These elements of the study then informed recommendations which aimed to conceptualise therapists' discussions into tangible, practical outcomes. The recommendations summarised current practice viewed as beneficial, in addition to novel suggestions for increasing therapist confidence in adapting psychological therapies for autistic patients. The recommendations were discussed with the service and amended based on their

feedback. They were received positively by the team and their implementation was discussed to move the improvement project into the "Do" stage of the PDSA cycle (Edward et al., 2017).

Limitations

A limitation of the current study is the lack of SU voices heard. If there were scope within this project an ideal design would have explored the impact of therapist confidence in adapting therapies on therapeutic outcomes for autistic patients. Though not included in the current study, during the implementation phase of the recommendations it was recommended for service user feedback to be actively sought. It is hoped that this process will inform the review part of the implementation cycle. Another limitation of the study is the lack of insight into therapeutic outcomes of autistic patients within the service. It was initially hoped for outcomes of an audit and simple analysis of CBTp outcomes in autistic and non-autistic patients to be a part of this project. Unfortunately, this was not possible within the scope of this project, and it was recommended for the service to accurately record autism diagnosis on clinical care, psychological referral, and psychological intervention records to enable such projects in the future.

The study is further limited by the limited number of participantsin relation to the total number of therapists within the service. The project recommendations were primarily derived from focus group discussions, in which 8 therapists participated. Approximately 20 therapists within the service were invited to participate, and therefore the views of less than half of these professionals were heard and sythesised within the thematic analysis. This is an important limitation as the reasons for not participating are unknown, but may relate to increased burnout, less available time, or possibly lower confidence or competence in this area. Therefore, a wide

range of opinions may have not been captured, and the recommendations are limited to the ideas raised by those who did participate.

Conclusions

Adapting psychological therapies for autistic patients is vital, and therapist confidence in making these adaptations mediates therapeutic outcomes. EIS therapists need to be competent in providing necessary adjustments and adaptations to enable autistic SUs to maximally benefit from psychological therapies. The current research project identified a range of factors that facilitate and interfere with therapists' competence in making such adaptations within Oxfordshire and Buckinghamshire EIS. The outcomes of this research led to development of recommendations to improve therapist competency and included a tool for the service to continually monitor such improvements.

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Theoretically Driven Research Project

An investigation of the relationship between voice-hearing distress and frequency, and interpersonal traumatic experiences in childhood, while controlling for adulthood interpersonal trauma, mood and anxiety.

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Proposed Journal: Psychosis: Psychological, Social and Integrative Approaches

Rationale: This journal *addresses two steadily developing fields: psychological treatments of*

psychosis and psycho-social causes of psychosis. It is hoped this research will reach a wide audience of professionals interested in pscyhosis (Appendix J).

Abstract

Background

Auditory verbal hallucinations (AVH/s) are a common phenomenon associated with various psychiatric diagnoses, including psychosis. Evidence has identified strong links between the development of AVHs and childhood adversity, particularly interpersonal trauma. The traumagenic neurodevelopmental model of psychosis theorises that AVHs and psychotic symptoms develop following childhood trauma due to their occurrence during sensitive developmental periods. Research has also identified links between interpersonal trauma in adulthood and AVHs, however literature has not examined the independent effects of childhood interpersonal trauma, while controlling for adulthood interpersonal trauma, and AVHs. This study aimed to explore the link between childhood interpersonal trauma and AVHs while controlling for adulthood trauma.

Methods

Fifty-five participants who experienced distressing verbal hallucinations participated in this study. Participants completed a range of measures related to their experiences of voices, trauma, dissociation, and mood.

Results

A hierarchical regression indicated that childhood interpersonal trauma was not significantly predictive of distressing voices, when controlling for adulthood trauma. When interpersonal trauma in adulthood was not factored into the regression model, childhood trauma was predictive of AVHs. Adulthood interpersonal trauma was not predictive of AVHs when controlling for childhood trauma. Only childhood interpersonal trauma was significantly

associated with dissociation, however mediation analyses revealed that dissociation did not mediate the relationship between childhood or adulthood trauma, and AVHs.

Discussion

The results did not support the traumagenic neurodevelopmental theory that childhood trauma, specifically, is associated with AVH development. The results suggested that adulthood trauma played a significant role in this relationship and further research disentangling the relationship between traumatic experiences and AVHs is required. Limitations and clinical implications are discussed.

Introduction

Voice-hearing is often viewed as a symptom of severe mental illness and associated with psychotic disorders such as schizophrenia, however it is a common phenomenon that occurs in 10-15% of the population (Volpato et al., 2022). In the DSM-V voice-hearing is clinically termed auditory verbal hallucinations (AVH/s) (American Psychiatric Association (APA), 2013) and is defined as auditory perceptions without external stimulation (Berry et al., 2018). The current research focuses on distressing voices, and therefore the term AVH will be adopted. Though associated with psychosis, AVHs have been identified as possible symptoms for over 50 psychological disorders, in addition to non-clinical populations (Longden et al., 2016; Longden et al., 2012), which undermines earlier understandings that AVHs are specific to schizophrenia (Woods et al., 2022). Though sometimes comforting, AVHs are often more distressing, abusive, or unsettling in psychotic disorders (Woods et al., 2022). AVHs are additionally associated with increased anxiety and lower mood, both of which can impact the content of, and response to, voices (Scott et al., 2020). Mood congruence theories suggest that information is best retrieved and stored during congruent affective states, and therefore the mood of an individual is thought to impact upon the distress of voices and the content

associated with AVHs (Scott et al., 2020). Despite significant advances over recent years in clinical management of AVHs, research, and in advocacy improvements, AVHs remain stigmatised and poorly understood (Woods et al., 2022).

In the 1900s, AVH mechanisms and psychotic disorders were primarily theorised via biological and genetic approaches (Chua & Murray, 1996; Norman & Malla, 1993; Read et al., 2001). These approaches placed emphasis on the diathesis-stress model, proposing that genetic deficits create predisposing genetic vulnerabilities via oversensitivity to stress. Though accepted as the consensus in the 20th century, the explanatory power of the theory was queried as it overlooked psychosocial events (Read et al., 2001; Rose, 2001). The effects of life adversity, particularly traumatic experiences, have been recognised for their contribution to the development and maintenance of psychotic disorders, and specifically to AVHs (Read et al., 2001; Steel, 2015).

Extensive research and multiple reviews have identified strong links between the experience of trauma and later development of AVHs (e.g., Grubaugh et al., 2011; Shevlin et al., 2011). Research has also identified trauma related effects on hallucination development, frequency, distress, content, and maintenance, resulting in multiple theoretical perspectives of these processes (Hardy et al., 2005; Luhrmann et al., 2019; Reiff et al., 2012; Steel, 2015). Links between AVHs and the experience of trauma during childhood specifically are well established (Schäfer & Fisher, 2011), with the strongest associations being with sexual and physical abuse in childhood (Browne & Finkelhor, 1986; Schäfer & Fisher, 2011; Shevlin et al., 2007).

The traumagenic neurodevelopmental (TN) theory of psychosis emphasises the role of adversity in psychosis development and attempts to explain the link between psychotic symptoms and *childhood* trauma specifically (Read et al., 2001). The TN theory posits that trauma experienced specifically in childhood can disrupt neurodevelopment, leading to

emotional, cognitive, and perceptual disturbances that can later manifest as psychotic symptoms (Kocsis-Bogár & Perczel Forintos, 2014; Read et al., 2001). In contrast to purely genetic approaches to psychosis, the TN theory postulates that exposure to extreme stress via trauma, at critical points in development, causes an increased stress sensitivity via the dopamine pathway and can bias cognitive processes, contributing to psychosis, irrespective of genetic predisposition (Read et al., 2001).

The TN model theorises psychosis development, though for the current research, to better understand the AVH-trauma pathway, it is adopted for its emphasis on the role of early-life adversity in shaping psychotic symptoms such as AVH, rather than psychotic disorders broadly. The reason for this choice is three-fold, firstly, literature widely supports that the strongest link between childhood trauma and psychotic symptoms is with AVHs (Begemann et al., 2022; Shevlin et al., 2011). Secondly, AVHs occur in clinical and non-clinical populations, including non-psychotic individuals (e.g. trauma survivors or those without diagnoses), and it is possible that the TN theory also conceptualises the symptom of AVH rather than particular diagnostic categories, which aligns with more modern transdiagnostic models (Dalgeish et al., 2020). Finally, not all individuals with psychosis hear voices, and not all voice-hearers meet the criteria for psychosis, possibly suggesting that AVHs could have distinct origins, again, regardless of symptom classification for diagnoses.

The authors also acknowledge limitations of the model, for example its limited ability to explain why not all those with childhood trauma develop hallucinations, or why not everyone who hallucinates have histories of childhood trauma (Kocsis-Bogár & Perczel Forintos, 2014; Read et al., 2001).The authors suggest that dissociation may mediate the development of psychosis and psychotic symptoms following childhood trauma (Read et al., 2001). Patients who experienced trauma in childhood and hear voices are more likely to report dissociative experiences (DEs) than those who experienced adulthood trauma (Perona-Garcelán et al.,

2012), and childhood dissociation has been repeatedly associated with voice hearing (e.g., Perona-Garcelán et al., 2012; Schäfer et al., 2008). The precise mechanisms of dissociation are unknown, and specific dissociative processes involved in the interplay between dissociation and cognitive mechanisms believed to underlie hallucinatory experiences, have not been well explored (Varese et al., 2012).

Childhood interpersonal trauma links with distressing AVHs have been well established, however the relationship between adulthood trauma and AVHs is less understood. The TN model views childhood trauma as uniquely causational in relation to psychotic symptoms, due to the significance of trauma occurring during neurodevelopment, however links between adult trauma and psychotic symptoms have been evidenced (eg., Compean & Hamner, 2019; Schäfer & Fisher, 2011). AVHs and trauma are well documented in PTSD developing in adulthood, for example, where two-thirds of adult civilian trauma survivors and half of traumatised military veterans have reported AVHs (Wearne et al., 2020). These findings suggest an association between adulthood traumatic experiences and later AVH development, despite neurodevelopment having ended.

Adulthood interpersonal trauma is associated with PTSD with psychotic features, including voice-hearing (Compean & Hamner, 2019), though these studies have often not controlled for childhood trauma (Bailey et al., 2018; Hacioglu Yildirim et al., 2014). Research has emerged indicating the significance of adulthood interpersonal trauma and distressing AVHs (Hacioglu Yildirim et al., 2014; Yates et al., 2022). In Yate and colleagues' (2022) study, the authors additionally controlled for childhood trauma and found no evidence to support that childhood and adolescence are uniquely sensitive times for the emergence of psychotic symptoms in relation to sexual trauma. The pathways between trauma and AVH in adulthood are less understood and there is a call for more research in this area due to the lack of robust findings (Wearne et al., 2020).

The TN model theorises a specific route between childhood trauma and voice-hearing, however due to lack of controlling for childhood trauma in adulthood studies, and vice versa, the specificity of the significance of trauma occurring in childhood is unknown. The current research therefore aims to explore the link between both childhood and adulthood interpersonal trauma and voice-hearing, while controlling for each other, as well as mood and anxiety (Scott et al., 2020). As dissociation has been suggested to be a possible mediating factor between childhood trauma and voice hearing (Wearne et al., 2020), the study also aims to explore this in both childhood and adulthood trauma contexts.

Aims and Hypotheses:

The study has one main hypothesis and three secondary hypotheses.

a) Primary aims and hypotheses

The primary aim of the study is to investigate the association between interpersonal traumatic experiences in childhood and voice hearing.

Based on the primary aim, we propose the following hypothesis:

H1: Interpersonal trauma experienced in childhood will be predictive of voice-hearing frequency and distress, when controlling for adulthood interpersonal trauma, mood, and anxiety.

b) Secondary aims and hypotheses

The secondary aims of the study are to understand the specificity of trauma occurring in childhood, and voice-hearing, and the possible meditating role of dissociation.

The following hypotheses were developed based on our secondary aims:

H2: Exposure to interpersonal traumatic experiences in adulthood will not be predictive of voice-hearing, when controlling for childhood interpersonal trauma, mood and anxiety.

H3: Childhood interpersonal traumatic experiences will be positively associated with dissociation, when controlling for mood and anxiety. This will not be found for adulthood interpersonal trauma.

H4: In participants who experienced childhood interpersonal trauma, dissociation will be shown to have a mediatory effect on experiences of voice hearing, in participants who experienced interpersonal trauma in adulthood dissociation will have no mediatory effect on experiencing voice hearing, when controlling for mood and anxiety.

Method

Design

The study was an observational cohort design using quantitative methods to evaluate relationships between variables. Demographic data was collected to assess the representativeness of the sample. To control for mood and anxiety, additional measures were completed by the respondents. Data was collected at a single time point using online self-report questionnaires.

Ethical approval

Ethical approval was granted by a full IRAS panel (IRAS number: 334076, REC reference: 24/SS/0048) and HRA approval, and the project was sponsored by Oxford Health NHS Foundation Trust (Appendix K).

Public and Patient Involvement

An expert with lived experience was compensated for consultation throughout the study development, delivery, and dissemination.

Participants

Fifty-five participants were recruited from Oxfordshire and Buckinghamshire Early Intervention in Psychosis (EIP) services, social media, and third sector support groups between July-November 2024. Participants who had experienced voice-hearing, who were over eighteen, and living in the UK were recruited. A total sample size of 55 was required to detect a medium effect size, see power analysis (Cohen, 2013).

Measures

Demographic measures

Participants were asked their age, gender, ethnicity, and level of education.

Traumatic experiences measures

The Brief Betrayal Trauma Survey (BBTS) is a 24-item self-report measure of both childhood and adulthood trauma (Goldberg & Freyd, 2006). It assesses 12 different types of traumatic events before and after age 18. Goldberg and Freyd (2006) reported the BBTS demonstrated good test-retest reliability over three years in an adult community sample; the agreement percentages between both tests were 83% for childhood trauma and 75% for adulthood trauma.

Voice-hearing measures

The Psychotic Symptom Rating Scale (PSYRATS) is comprised of 17 items on specific dimensions of hallucinations and delusions, with each item being rated from 0 (absent) to 4 (severe) (Haddock et al., 1999). The PSYRATS has 2 subscales: the auditory hallucinations subscale (AHS) and the delusions subscale (DS). The PSYRATS-AH has demonstrated excellent inter-rater reliability, and good validity (Haddock et al., 1999). The AVHS distress item was used for the primary hypothesis scored as 0-4, where a score of 1 or more indicated distress from voice-hearing. An amended version of the AVHS frequency item was also used. Here the scores remained the same (0-4), however the lowest frequency item (no voices heard over the last week), was broadened to include voice-hearing experiences up to and over 12 months ago.

The onset age of voice-hearing, and whether this occurred after traumatic experiences, was also collected.

Dissociative experiences measure.

The Dissociative Experiences Scale-Brief (DES-B) comprises of 8-items taken from the DES-Revised that assess the severity of dissociative experiences in adults (Dalenberg & Carlson, 2010). Items are rated on 5-point Likert scales, totalling scores out of 32, with higher scores indicating greater severity of dissociative experiences. The test-retest reliability of the DES-B is strong, suggesting the measure is consistent across time (r =.90). The DES-B also showed a strong correlation to other validated measures ($r = .57$, $p < .001$) (Dalenberg & Carlson, 2010).

Mood and anxiety measures.

The eight-item Patient Health Questionnaire (PHQ-8) is a variation of the original PHQ-9 with exclusion of item 9 (Kroenke et al., 2009). The PHQ-8 has similar psychometric properties to the PHQ-9 (Kroenke et al., 2009), which has good internal reliability (α = .89) and test–retest reliability (r = .84).

Generalised Anxiety Disorder (GAD) 7-item anxiety measure (GAD-7) is a brief anxiety scale, with high reliability and validity for screening for anxiety disorders, particularly GAD, and for assessing severity (Spitzer et al., 2006). Similarly, the GAD-7 measure is widely used in research and has shown excellent internal (α = .92) and test–retest reliability (r = .83) in a clinical sample (Spitzer et al., 2006).

Procedure

A study poster (Appendix L), information sheet, and consent form (Appendix M) were shared with Oxfordshire and Buckinghamshire NHS services, independent voice-hearing organisations and on social media platforms. Participants accessed a Qualtrics link with these forms and completed self-report measures (Appendix N-R). Respondents were informed of potentially distressing questions and signposted to supportive services at the end of the survey (Appendix S). Upon completion, or if stopped mid-way; debrief information was provided. Participants were able to withdraw at any time and were offered an opportunity to leave the questionnaire partway. Data could be withdrawn prior to the completion of data collection.

Data analysis

A priori power calculation using G*power (Faul et al., 2009) established the minimum sample size required to test the hypotheses. For a hierarchical regression model with three included predictors, 55 participants were required to achieve 80% power to find a medium F-squared effect size of 0.15 (Cohen, 2013) at an alpha level of 0.05 (see Appendix T). A medium effect size was adopted as recommended in Cohen's (2013) guidelines for psychological research where size estimates are less available. Similar research investigating childhood interpersonal trauma and AVHs found medium effect sizes (Varese et al., 2012), although not all variables were the same.

The Statistical Package for the Social Sciences (SPSS version 29.0.2.0) was used for data analysis. Descriptive statistics were calculated to describe demographic variables and the prevalence of AVH and trauma symptoms in the study population. Traumatic experiences at both age points and associations with mood and anxiety were additionally explored.

Statistical analyses: Main analysis

Firstly, data was checked for outliers detected through manually and statistically detecting extreme or illegitimate data, no data were excluded following discussions. Two participants who indicated they experienced no trauma prior to hearing voices were excluded. Descriptive statistics were used to explore participant demographics and trauma prevalence. Outcomes of childhood interpersonal trauma from the BBTS and psychotic experiences as measured by distress and frequency scores, combined, were analysed using a hierarchical linear regression. Voice hearing frequency and distress were the dependent variable, covariates of mood and anxiety were step 1 in the regression, adult interpersonal trauma scores were step 2, and child interpersonal trauma was step 3. This approach was chosen due to its ability to test for the

specific contribution of child interpersonal trauma in the model, while controlling for adulthood trauma and mood.

To meet requirements of the hierarchical multiple regression, various assumptions were assessed. Linearity was confirmed and assessed by partial regression plots in addition to a plot of studentised residuals against predicted values. Independence of residuals was observed, as assessed by a Durbin-Watson statistics proximity to 2. Homoscedasticity was confirmed as assessed by visual inspection of a plot of studentised residuals versus unstandardized predicted values. Multicollinearity were ruled out as assessed by tolerance values greater than 0.1, and no VIF values over 3. Studentised deleted residuals greater than ±3 standard deviations, leverage values and values for Cook's distance were also assessed. The assumption of normality was met, as assessed by Q-Q Plot.

Exploratory analyses

The association between adult trauma and voice hearing frequency and distress were also analysed via hierarchical linear regression. Mood and anxiety were step 1 in the regression, child interpersonal trauma was step 2, and adult interpersonal trauma was step 3. As above, steps were taken to ensure the assumptions of the model were met.

Descriptive statistics were used to understand dissociative experience scores as recommended by the tool. A linear regression analysis was used to determine the relationship of dissociation and voice hearing, as separate analyses across each group (childhood and adulthood interpersonal trauma).

A process mediation analysis (Preacher & Hayes, 2004) was then completed to determine whether dissociation mediated the relationship between childhood trauma and voice hearing

frequency and distress. The same process was repeated to investigate whether dissociation mediated the relationship between adulthood trauma and severity of voice hearing.

Results

Fifty-five participants took part in this study. Demographic and descriptive information can be viewed in Table 1, and traumatic experiences data from the BBTS can be viewed in Table 2. Most participants were female, white, and educated to university level. The mean age of participants was 38.6 years, and most participants reported first hearing voices between the ages of 10 and 19 years of age. In terms of current voice-hearing, on average, participants heard voices weekly and reported equal amounts of distressing and non-distressing voices. Most participants scored in the major depression score range of the PHQ-8, and in the severe anxiety score range of the GAD-7.

Table 1. *Participant demographics and descriptives.*

	Participant demographics	**Count**	**N (%)**
Age	18-25	14	25.45%
	26-35	10	18.19%
	36-45	13	23.64%
	46-55	8	14.54%
	56-65	8	14.54%
	66 and above	2	3.64%
Gender	Female	38	69.09%
	Male	9	16.36%
	Non-binary / third gender	6	10.91%
	Prefer not to say	2	3.64%
Ethnicity	White	52	94.55%
	Asian	1	1.82%
	Mixed ethnic groups	1	1.82%

	White other	1	1.82%
Education	Primary school or lower	2	3.64%
	Secondary School	7	12.73%
	College or Sixth Form	14	25.45%
	University	22	40.00%
	Post Graduate University	9	16.36%
	Prefer not to say	1	1.82%
Voice-hearing onset age	0-9	11	20.00%
	10-19	27	49.09%
	20-29	9	16.37%
	30-39	3	5.45%
	40-49	3	5.45%
	50-59	2	3.64%
Voice frequency	Voices occur continually ie. only stop for a few seconds or minutes	9	16.37%
	Voices occur at least once an hour	5	9.10%
	Voices occur at least once a day	11	20.00%
	Voices occur once a week	6	10.90%
	Voices not currently present or present less that once a week	24	43.63%
Voice distress	Voices always distressing	10	18.18%
	Majority of voices distressing, minority not distressing	8	14.54%
	Equal amounts of distressing and non-distressing voices	15	27.28%
	Voices occasionally distressing, majority not distressing	22	40.00%
Self-reported Traumatic experiences	Trauma experienced both before and after voice-hearing	24	43.63%
	Trauma only before voice-hearing	23	41.82%
	No traumatic experiences	8	14.55%

Mood (PHQ-8)	Sub-clinical depression	21	38.18%
	Major depression	23	41.82%
	Severe major depression	11	20.00%
Anxiety (GAD-7)	Minimal anxiety	10	18.18%
	Mild anxiety	13	23.64%
	Moderate anxiety	13	23.64%
	Severe anxiety	19	34.54%

In terms of traumatic experiences, 86% of participants reported experiencing trauma before the onset of voice-hearing, and 44% experienced trauma both before and after hearing voices. 95% of participants had experienced at least one traumatic experience before the age of 18, and 84% experienced at least one traumatic event in adulthood. In terms of type of trauma, under the age of 18, 93% of participants reported experiencing interpersonal trauma, 71% experienced physical or sexual abuse, and 65% experienced child sexual abuse. In adulthood, 76% of participants reported experiencing at least one interpersonal trauma, 67% experienced physical or sexual abuse, and 56% had experienced sexual abuse.

Table 2. *BBTS scores descriptive statistics.*

BBTS ITEM	UNDER 18	OVER 18
	N (%)	N (%)
1. Been in a major earthquake, fire, flood, hurricane, or tornado that resulted in significant loss of personal property, serious injury to yourself or a significant other, the death of a significant other, or the fear of your own death.	5 (9.09)	8 (14.54)
2. Been in a major automobile, boat, motorcycle, plane, train, or industrial accident that resulted in similar consequences.	2 (3.64)	6 (10.91)
3. Witnessed someone with whom you were very close (such as a parent, brother or sister, caretaker, or intimate partner) committing suicide, being killed, or being injured by another person so severely as to result in marks, bruises, burns, blood, or broken bones. This might include a close friend in combat.	13 (23.64)	10 (18.18)

4. Witnessed someone with whom you were not so close undergoing a similar kind of traumatic event.	17 (30.90)	14 (25.45)
5. Witnessed someone with whom you were very close deliberately attack another family member so severely as to result in marks, bruises, blood, broken bones, or broken teeth.	11 (20.00)	11 (20.00)
6. You were deliberately attacked that severely by someone with whom you were very close.	16 (29.09)	13 (23.64)
7. You were deliberately attacked that severely by someone with whom you were not close.	14 (25.45)	10 (18.18)
8. You were made to have some form of sexual contact, such as touching or penetration, by someone with whom you were very close (such as a parent or lover).	17 (30.90)	22 (40.00)
9. You were made to have such sexual contact by someone with whom you were not close	32 (58.18)	21 (38.18)
10. You were emotionally or psychologically mistreated over a significant period of time by someone with whom you were very close (such as a parent or lover).	42 (76.36)	33 (60.00)
11. Experienced the death of one of your own children.	2 (3.64)	3 (5.45)
12. Experienced a seriously traumatic event not already covered in any of these questions.	26 (47.27)	20 (36.36)
Any trauma	52 (94.54)	46 (83.64)
Interpersonal trauma (q3-10)	51 (92.72)	42 (76.36)
Physical or sexual abuse (q6-9)	39 (70.90)	37 (67.27)
Sexual abuse (q8-9)	36 (65.45)	31 (56.36)

Associations between traumatic experiences at both ages and both mood and anxiety were explored using Pearson's correlation. A Pearson correlation showed a non-significant positive association between childhood interpersonal trauma and anxiety, r = .303, p= .024. A significant positive association was found between childhood interpersonal trauma and mood, r= .411, p=0.002. A non-significant positive association between adulthood interpersonal trauma and anxiety, r= .206, p=.0132 was also found. Adulthood interpersonal trauma and mood did significantly positively correlate, r= .404, p=0.002.

H1: Interpersonal trauma experienced in childhood will be predictive of voice-hearing frequency and distress, when controlling for adulthood interpersonal trauma, mood, and anxiety.

A hierarchical multiple regression was run to determine whether childhood interpersonal trauma experiences improved the prediction of voice hearing distress and frequency, more so than mood, anxiety, and adulthood trauma alone, see Table 3. The full model was not statistically significant, $R^2 = .157$ $F(1,50) = 2.329$, $p = 0.069$; adjusted $R^2 = 0.090$ (see appendix U). The second step on the model which added just adulthood trauma, was also non-significant R^2 of 0.112, $F(1,51) = 2.144$, $p = 0.106$; adjusted $R^2 = 0.060$. All assumptions of the hierarchical regression as discussed previously were met.

Table 3. *Hierarchical multiple regression predicting voice-hearing frequency and distress from mood, anxiety, adulthood interpersonal trauma, and childhood interpersonal trauma.*

Voice-hearing distress and frequency

	Model 1		**Model 2**		**Model 3**	
Variable	B	β	B	β	B	β
Constant	2.533		2.433		2.233	
PHQ-8	-0.042	-0.134	-0.057	-0.185	-0.070	-0.224
GAD-7	0.141*	0.409*	0.147*	0.428*	0.138*	0.402*
Adulthood Trauma			0.067	0.093	-0.023	-0.032
Childhood Trauma					0.159	0.264
R^2	0.105		0.112		0.157	
F	3.048		2.144		2.329	
ΔR^2	0.105		0.007		0.045	
ΔF	3.048		0.404		2.674	

*Note. N=55. *p<0.05*

Exploratory analyses

For exploratory analyses another hierarchical multiple regression was run to determine whether adulthood interpersonal trauma experiences improved the prediction of voice hearing distress and frequency, see Table 4. The full model of mood, anxiety, child interpersonal trauma and adulthood interpersonal trauma was not statistically significant, as seen above, the full model was the same, however step 2 differed between models. In this model, the second step adding childhood interpersonal trauma to the prediction of voice-hearing frequency and distress, did lead to a statistically significant increase in R^2 of 0.156, $F(1,51) = 3.152$, $p = 0.033$; adjusted $R^2 = 0.107$. The assumptions of the model were met and assessed as discussed above.

Table 4. *Hierarchical multiple regression predicting voice-hearing frequency and distress from mood, anxiety, childhood interpersonal trauma, and adulthood interpersonal trauma.*

Voice-hearing distress and frequency

	Model 1		**Model 2**		**Model 3**	
Variable	B	β	B	β	B	β
Constant	2.533		2.218		2.233	0.623
PHQ-8	-0.042	-0.134	-0.073	-0.236	-0.070	-0.224
GAD-7	0.141*	0.409*	0.140*	0.408*	0.138*	0.402*
Childhood Trauma			0.150	0.249	0.159	0.097
Adulthood Trauma					-0.023	-0.032
R^2	0.105		0.156		0.157	
F	3.048		3.152*		2.329	
ΔR^2	0.105		0.051		0.001	
ΔF	3.048		0.001		0.040	

*Note. N=55. *p<0.05*

To explore the third hypothesis, a hierarchical regression was run to assess how predictive childhood interpersonal trauma was of dissociation, when controlling for mood and anxiety. Results indicated a statistically significant result of R^2 of 0.499, $F(1,51) = 16.911$, $p < 0.001$; adjusted $R^2 = 0.469$, the addition of dissociation to the model had a significant R^2 change of 0.105. All assumptions were met as previously described.

A further hierarchical regression was run to assess the predictive relationship between adulthood interpersonal trauma and dissociation, while controlling for mood and anxiety. Results indicated a non-significant relationship; $R^2 = 0.400$, $F(1,51) = 11.312$, $p = 0.482$; adjusted $R^2 = 0.364$, the addition of dissociation to the model had a non-significant R^2 change of 0.006. All assumptions were met as previously described.

For the final hypotheses, two mediation analyses were performed using the PROCESS v5.0 extension for SPSS (Hayes, 2013). Firstly, a process mediation was run to explore the mediatory effect of dissociation, on the relationship between childhood interpersonal trauma and voice hearing frequency and distress, see Figure 1. A process mediation and Sobel test indicated a statistically insignificant indirect mediation effect of dissociation on voice-hearing frequency and distress; $b = 0.044$, BCa CI [-0.058, 0.146], SE= 0.053, $p = 0.409$.

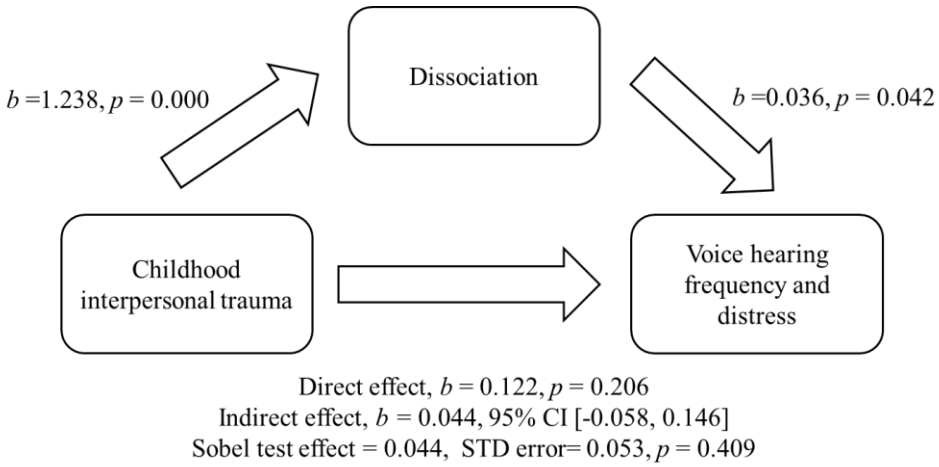

Figure 1: Process mediation 1

A second process mediation was performed to assess the mediatory effect of dissociation on adulthood trauma and voice-hearing frequency and distress, see Figure 2. The process mediation found dissociation to be a statistically insignificant mediator of this relationship; *b* = 0,049, BCa CI [-0.008, 0.140], SE= 0.053, *p* = 0.409.

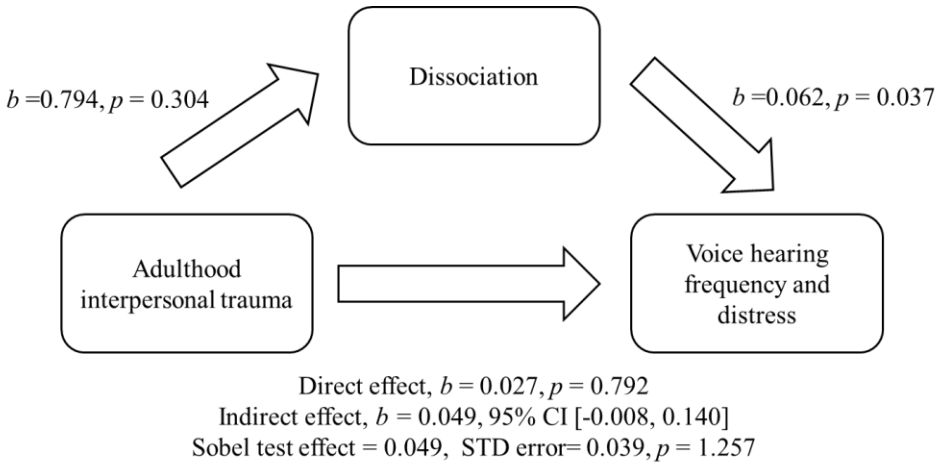

Figure 2: Process mediation 2

Discussion

The findings did not support the primary hypothesis, indicating that experiences of childhood interpersonal trauma were not significantly predictive of voice-hearing frequency and distress, when controlling for adulthood interpersonal trauma, mood, and anxiety. In the first regression model, only anxiety was statistically significantly predictive of voice-hearing distress and frequency. This finding did not align with literature supporting a predictive relationship between interpersonal trauma experienced in childhood and voice-hearing distress and frequency, in individuals with distressing voices (Read et al., 2004; Schäfer & Fisher, 2011; Shevlin et al., 2007). However, in the second model, childhood trauma was significantly predictive of voice-hearing distress, when adulthood trauma had not been accounted for. This finding is important, and to our knowledge this study is the first detailed investigation of

childhood interpersonal trauma and voice-hearing, while controlling for adulthood interpersonal trauma, in adults with at least mildly distressing voices. There is vast literature examining the predictive relationship between AVH and other psychotic symptoms and childhood trauma (Bailey et al., 2018; Shevlin et al., 2011), however these have not controlled for adulthood trauma, and our results suggest it is possible that this relationship has been overstated.

This study does not discredit the TN model but emphasises the complexity in the relationship between traumatic experiences and AVH, suggesting that adulthood trauma influences are possibly more significant than previously thought, and that the specificity of childhood trauma influences may be less clear. However, it is well established that those who experience childhood trauma are significantly more likely to experience adulthood trauma (Fereidooni et al., 2024), and therefore examination of the specific effects of childhood trauma cannot be completely isolated. As this research is novel in its examination of this relationship with control for different trauma ages, research has not yet attempted to disentangle these relationships and therefore more research is required. Overall, the findings do not support the specificity of the TN models' theory of AVH developing from childhood trauma alone.

Other research has criticised the TN theory for limited explanatory power, and the current study contributes to this viewpoint, however the lack of significant findings between childhood interpersonal trauma and AVHs in the current study does not suggest that childhood interpersonal trauma is not specifically associated with AVHs. The findings lend support more closely to theories of AVH that are not age-specific, but more generally explain the role of trauma in AVH development for example the contextual integration theory (Steel et al., 2005) and cognitive and attributional models (Morrison et al., 2003). Dissociation theory is another model that has attempted to explain the relationship. In this study dissociation was a statistically significant predictor of voice-hearing distress when controlling for mood and anxiety, in line

with literature that emphasise the key role of dissociation in AVH development, experience, and distress (Read et al., 2001; Schäfer et al., 2008). However, the final analyses indicated that dissociation did not mediate the predictive relationship between childhood interpersonal trauma and voice-hearing. Though not found in the current study, this does not suggest dissociation is not a mediating factor, or discount literature which suggests dissociation as a key mediatory mechanism in the development of voice-hearing, following childhood interpersonal trauma (Bloomfield et al., 2021; Cole et al., 2016; Varese et al., 2012).

The relationship between trauma and AVHs is complex and likely involves multiple psychological and neurobiological mechanisms. Though the study did not support the TN theory, it does not discount the entire theory, and it is likely both childhood and adulthood trauma combined is the strongest predictive factor. It is most likely that AVHs are best explained through integrating theoretical approaches to account for the interaction between traumatic experiences, cognitive misattributions, neurobiological and neurodevelopmental vulnerabilities and social stressors. A multifaceted framework that integrates such theories may offer a more holistic understanding of the relationship between traumatic experiences and AVHs, to inform intervention.

Outcomes from the trauma questionnaire additionally support current literature and highlight extremely high experiences of both childhood and adulthood trauma (Read et al., 2004; Spence et al., 2006; Yates et al., 2022). Across the sample of fifty-five voice-hearing participants, 95% had experienced at least one type of traumatic event in childhood, and 84% in adulthood. These results contribute to the evidence that voice-hearers are significantly more likely to be exposed to abuse and trauma in childhood, as well as in adulthood.

Clinical implications

Voice-hearing is often viewed as a negative and distressing symptom, however the current study found most participants viewed their voices as equally distressing and non-distressing. This is an important finding as voice-hearing stereotypes may contribute to continued stigma against symptoms such as AVH and associated disorders. Clinicians should remain curious when working with voice-hearing clients and be open to the possibility that voice-hearing itself, is not causing difficulties in an individual's life.

Furthermore, the current research found high levels of all types of traumas, in both adulthood and childhood, and this should be held in mind clinically. Compared to UK averages, the current sample was 13 times more likely to have experienced childhood sexual abuse (Radford et al 2011), and almost three times as likely to experience adulthood sexual abuse (Elliot and Brierre, 2004). The study highlights the frequency at which trauma has been experienced in people who hear voices and re-enforces the clinical importance of providing trauma informed care across all spectrums of health and social care. Trauma-focused CBT for psychosis has been found to be effective and feasible in routine care (Hardy et al., 2022), the findings of the current study endorse such treatments.

Other clinically relevant findings included the importance of anxiety in predicting distressing voices. Irrespective of childhood and adulthood trauma and mood, anxiety was a predictor of voice-hearing distress and frequency. Therefore, as supported by other literature (Scott et al., 2020), it is important for anxiety to be explored and considered in the experience of voices and may indicate a higher clinical need for AVH when anxiety is high.

Limitations

A key limitation of the study relates to the sample included. Firstly, the current study recruited participants who experienced at least mildly distressing voices. Therefore, the findings of this study can only be generalised to individuals who experience at least mildly distressing voices,

and not those without distressing voices. Secondly, the representation of the sample is limited, which included mostly white females with high educational attainment. Voice-hearing, trauma, and AVH associated disorders are disproportionally represented in non-White ethnicities and it is therefore important to better understand these experiences within minority populations. Furthermore, the current observed sample reported higher than average educational attainment. According to the Census (ONS, 2023), 3/10 adults had qualifications level 4 and above, in the current sample of those who reported their education, 56% had achieved this level of education. This not only contradicts literature finding lower educational attainment in AVH groups such as people with schizophrenia (Sideli et al., 2020), but is clinically relevant, as it possibly relates to the lower AVH distress and frequency in a protective way due to likely increases in financial stability and/or prospects, which differs from much of the evidence base.

The current research is further limited by the power calculation used. As per Cohen's (2013) psychological research guidance, due to the lack of similar research examining the relationship between childhood interpersonal trauma and voice-hearing, with control of adulthood interpersonal trauma, mood, and anxiety, effect sizes weren't drawn directly from the evidence base. Consequently, a medium effect size was used to calculate power for this study this was based on Cohen's (2013) recommendations, and further supported by research in the area, without the exact same controls (Varese et al., 2012). Therefore, though the current sample size was adequately powered based on this analysis, due to the lack of empirical evidence in this area it is possible that the effect size of this study could have been both under, and over, stated.

Furthermore, during the current study the frequency of voice-hearing PSYRATS measure was adapted based on feedback from experts by experience, to enable more people to participate. Here, the original scoring was not amended, however the lowest frequency item (0) was extended from "no voices in the last week", to "no voices in the last 12 months". Therefore, although the scores themselves did not change, the amended version loses frequency data

specificity, where 2 weeks and 12 months would be scored equally. Furthermore, the validity of the PSYRATs as an empirical measure is weakened.

Another possible limitation of the current study was the recruitment strategy. Initially, participants were pursued via NHS services and AVH support groups, however after 3-4 months, participation was extremely low (N=7), and it was therefore decided to move recruitment to primarily social media and advertising. Though this strategy was successful, it is possible that this method impacted how representative our sample was, as is possible that the recruitment appealed more to individuals experiencing lower distress from voices due to the nature of the online survey, and the lack of reimbursement for participants' time. The lack of compensation is both a strength and limitation, as it is hoped that the lack of compensation would reduce ingenuine participation, however, the current sample has a history of exploitation and maltreatment form institutions, and it's important for participants' time to be valued.

Finally, the study recruited participants over 18 and utilised a measure of traumatic experiences that differentiated experiences of trauma between under and over the age of 18. The TN model emphasises the importance of childhood trauma disrupting neurodevelopmental processes, and there is a large body of evidence that suggests neurodevelopment continues until the age of 25 (Arain et al., 2013). It is therefore possible that the study is limited by not amending both the recruitment and measure to accommodate for development up to the age of 25, future research should consider this.

Conclusion

To the authors' knowledge, this is the only study to explore voice-hearing distress and frequency in adults with at least mildly distressing voices, and childhood interpersonal trauma, while controlling for adulthood interpersonal trauma experiences. The results suggested that when controlling for adulthood trauma, the relationship between childhood interpersonal trauma and AVH is non-significant. Therefore, this novel study contributes to the evidence base

aiming to understand the relationship between experiences, and AVH development, in addition to wider evidence of traumatic experiences, and AVH associated disorders, such as psychosis, and highlights the possibly significant role of adulthood interpersonal trauma.

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Executive Summary

Introduction

Voice-hearing is a common symptom associated with many mental health diagnoses, including psychosis. Hearing voices is the most common symptom of psychosis and in psychosis specifically, voices are often particularly distressing. For many years psychosis and symptoms such as voice hearing were understood from biological and genetic perspectives. Such models placed emphasis on the stress-diathesis model, however they were criticised due to their lack of consideration of psychosocial factors. Traumatic experiences, particularly, were overlooked and much research has identified strong links between psychosis, voice-hearing and childhood interpersonal trauma, leading to multiple perspectives on this relationship.

The traumagenic neurodevelopmental theory of psychosis is one theory that attempts to explain why childhood trauma specifically, is related to the later development of psychosis and symptoms including voice-hearing. The model suggests that extreme stress experienced during trauma during critical developmental points in childhood leads to the cognitive and perceptual biases associated with later psychosis. A limitation of the model is that not all those who experience trauma develop psychosis and vice versa, and the authors suggest that dissociation may be a factor that mediates this relationship.

The relationship between interpersonal trauma experienced in adulthood and psychosis and voice-hearing has also been well established. Most studies exploring traumatic experiences and voice-hearing have not controlled for the different ages of trauma, and therefore the specificity of trauma occurring in childhood, as proposed by the traumagenic neurodevelopmental model, is unclear.

Research Questions

This study aimed to investigate the relationship between childhood interpersonal trauma and voice hearing, while controlling for adulthood interpersonal trauma, mood and anxiety.

Additional research questions included exploring the relationship between adulthood trauma and voice hearing while controlling for childhood traumatic experiences. Dissociation was also explored as a mediating factor for the relationship between traumatic experiences and voice hearing.

Methods

Adults over 18 who reported hearing distressing voices were recruited for this study. Participants were recruited from NHS services, charities, and via social media. All participants took part in an online survey which included questions and questionnaires about their voices, traumatic experiences, dissociation, mood, anxiety and demographics.

Key Findings

A total of fifty-five participants took part in this research. The study found that when controlling for adulthood interpersonal traumatic experiences, childhood interpersonal traumatic experiences were not significantly associated with distressing voices. Similarly, adulthood trauma was not significantly predictive of voice-hearing when controlling for childhood traumatic experiences. However, when adulthood trauma was not accounted for, childhood interpersonal trauma was significantly predictive of voice hearing.

Only childhood interpersonal traumatic experiences were significantly associated with dissociative experiences. However, dissociation did not mediate either trauma age's

relationship to voice-hearing. The sample comprised of mostly White females with high educational attainment.

Implications and Limitations

The findings of this study did not support the traumagenic neurodevelopmental theory of psychosis, as it found no significant association between childhood interpersonal trauma and later voice hearing. Importantly, this was found only when adulthood trauma was controlled for. Most existing research into the relationship between childhood trauma and voice hearing has not controlled for adulthood trauma, and therefore the current research suggests that the established relationship between childhood trauma and voice hearing may have been overstated in the evidence base.

A limitation of the current study is that research suggests that neurodevelopment finishes at age 25, however adults over 18 were included in this study. Future research needs to further unpick the intricacies in the relationship between traumatic experiences and voice hearing.

Connecting Narrative

Prior to beginning the course, I was both personally and professionally interested in psychosis due to a variety of experiences, and I aimed, through the course, to further my understanding and clinical experience of this population, which I did. Alongside this, I uncovered new passions, one of which related to increasing my therapeutic reach by providing personalised evidence-based interventions tailored to meet a variety of needs and complexity. All three of my research projects are informed by this theme, and a motivation to contribute to a continually developing field that increasingly aims to improve care and outcomes. My projects aimed to improve the care of populations of parents of autistic children, autistic adults with psychosis, and voice-hearers who have experienced trauma. Though these populations and their contexts may seem distinct at first, each of my projects aimed to understand, and respond to, needs in more context specific, person centred, and flexible ways.

Systematic review of the literature

My first project aimed to review the efficacy of third-wave interventions for parents of autistic children. My interest in this area stemmed from various experiences, in CAMHS I was struck by the depth of emotional strain experienced by this population, and the lack of interventions available for parents. The parents I worked with often had multiple children with autism or other developmental disorders and their experiences of navigating raising an autistic child were often bleak and exhausting. During my time working in perinatal services, I had also developed an interest in the utility of third-wave therapies, and I personally resonated with the flexibility, values, acceptance and compassion focus of these approaches. It was these experiences that led to my interest in exploring the possible effectiveness of these therapies in improving wellbeing and reducing long-term stress, self-blame, and burnout in caregivers of autistic children.

The project was my first real experience of leading a systematic review, the process was invaluable to have undertaken, and the findings highlighted the importance of supporting an

entire system when considering an individual. The project contributed to thoughts around the practical applicability of research, though I have not had the opportunity to work in CAMHS since the review, the findings encourage the delivery of third-wave groups in child autism services. The project additionally furthered my interest in third-wave approaches, particularly in contexts where traditional CBT may be less suitable. The approaches included in my review placed emphasis on cognitive flexibility, acceptance, values and compassion, they additionally offer flexible frameworks that are adaptable to complex and individual needs, themes which recur throughout my research.

Service Improvement Project

My interest in adaptation was further developed and consolidated during my second research project that explored service level improvements to improving clinical care for autistic patients under the care of an early intervention in psychosis service. Specifically, this project hoped to improve the quality of care offered to autistic patients by improving therapist confidence in adapting CBT for psychosis, following findings from the service that high numbers of patients were autistic. This project was my first real experience of stepping away from theoretical research and into the demands of clinical work within services. The project identified that while many clinicians were knowledgeable about what adaptations for autism may include, their confidence in providing such adaptations had room for improvement.

This project highlighted the disparity between evidence-based practice and practically providing person-centred care. CBT for psychosis has received empirical support for reducing psychotic symptoms, and yet much of the protocol requires adaptation in order to meet the needs of autistic people and to increase the effectiveness of the treatment for these populations. Once more the concept of psychological flexibility arose, in this case not simply for service-users but for services and clinical staff. I also reflected on the tension experienced in teams,

between CPD and training needs versus clinical spaces to implement and consolidate new learning. Staff spoke to the vast amounts of training they have received and the need for clinically facing implementation and reflective spaces, in order to retain flexibility and provide personalised care.

Theoretically Driven Research Project

My final research project investigated voice-hearing and interpersonal trauma experienced in childhood and adulthood. The project links to obvious previous themes of severe and complex mental health conditions such as psychosis, but also echoes other themes running through my projects. Through investigating the relationship between childhood adversity and voice-hearing, the significance of the developmental context on psychological functioning was initially highlighted. In this project, voice-hearing, which is often misunderstood and stigmatised, was conceptualised as a distressing response to the experience of trauma. This project further emphasised the importance of trauma-informed, and again, person-centred care to allow individuals to engage in interventions. The project focused on voice-hearing as a transdiagnostic symptom to enable deeper understanding of specific symptoms and their development, rather than less flexible diagnostic labels.

When reflecting on the populations encompassed across my projects, I noticed the similarities between voice-hearers, autistic populations and caregivers of autistic children. All groups often experience stigma and self-stigma, they may be misunderstood and poorly catered for by non-specialised services and may experience distress related to diagnostic labels. Such reflections supported me to continue to think about psychological distress more transdiagnostically, and to see them as responses shaped by social, relational and developmental factors, rather than as a set of symptoms tied to disorders.

Overall, my projects have built on values of accessibility, inclusion, and contextual awareness. I have additionally become increasingly aware of ethical responsibilities of practice and the necessity of adaptation. As I begin my career clinically, I have learned to strongly value the need to balance evidence-based practice and personalised care, a theme highlighted by each project. My research has encompassed a range of topics, but each strives to contribute to personalised and inclusive psychological work. Across each project I have learned that useful psychological input requires flexibility in theory, approach and practice. I am excited to see how my continually evolving perspectives shape my clinical professional career.

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Appendices

Appendix A: SRL Journal Guidelines

PLOS Mental Health

Submission Guidelines

Related information for authors

- PLOS Writing Center
- Submission system
- Journal scope and publication criteria
- Guidelines for revisions
- Publication fees
- APC Support

Style and Format

File format	Manuscript files can be in the following formats: DOC, DOCX, or RTF. Microsoft Word documents should not be locked or protected. LaTeX manuscripts must be submitted as PDFs. Read the LaTeX guidelines.
Length	Manuscripts can be any length. There are no restrictions on word count, number of figures, or amount of supporting information. We encourage you to present and discuss your findings concisely.
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Nomenclature	Use correct and established nomenclature wherever possible.

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Drugs	Provide the Recommended International Non-Proprietary Name (rINN).
Species names	Write in italics (e.g., *Homo sapiens*). Write out in full the genus and species, both in the title of the manuscript and at the first mention of an organism in a paper. After first mention, the first letter of the genus name followed by the full species name may be used (e.g., *H. sapiens*).
Genes, mutations, genotypes, and alleles	Write in italics. Use the recommended name by consulting the appropriate genetic nomenclature database (e.g., HGNC for human genes; we strongly recommend using this tool to check against previously approved names). It is sometimes advisable to indicate the synonyms for the gene the first time it appears in the text. Gene prefixes such as those used for oncogenes or cellular localization should be shown in roman typeface (e.g., v-fes, c-MYC).
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Short title	70 characters	State the topic of the study	Cigarette smoke exposure and innate immunity SODIS and childhood diarrhoea

Titles should be written in sentence case (only the first word of the text, proper nouns, and genus names are capitalized). Avoid specialist abbreviations if possible. For clinical trials, systematic reviews, or meta-analyses, the subtitle should include the study design.

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Acknowledgments

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Accepted, unpublished articles	Same as published articles, but substitute "Forthcoming" for page numbers or DOI.
Online articles	Huynen MMTE, Martens P, Hilderlink HBM. The health impacts of globalisation: a conceptual framework. Global Health. 2005;1: 14. Available from: http://www.globalizationandhealth.com/content/1/1/14
Books	Bates B. Bargaining for life: A social history of tuberculosis. 1st ed. Philadelphia: University of Pennsylvania Press; 1992.
Book chapters	Hansen B. New York City epidemics and history for the public. In: Harden VA, Risse GB, editors. AIDS and the historian. Bethesda: National Institutes of Health; 1991. pp. 21-28.
Deposited articles (preprints, e-prints, or arXiv)	Krick T, Shub DA, Verstraete N, Ferreiro DU, Alonso LG, Shub M, et al. Amino acid metabolism conflicts with protein diversity. arXiv:1403.3301v1 [Preprint]. 2014 [cited 2014 March 17]. Available from: https://128.84.21.199/abs/1403.3301v1 Kording KP, Mensh B. Ten simple rules for structuring papers. BioRxiv [Preprint]. 2016 bioRxiv 088278 [posted 2016 Nov 28; revised 2016 Dec 14; revised 2016 Dec 15; cited 2017 Feb 9]: [12 p.]. Available from: https://www.biorxiv.org/content/10.1101/088278v5 doi: 10.1101/088278
Published media (print or online newspapers and magazine articles)	Fountain H. For Already Vulnerable Penguins, Study Finds Climate Change Is Another Danger. The New York Times. 2014 Jan 29 [Cited 2014 March 17]. Available from: http://www.nytimes.com/2014/01/30/science/earth/climate-change-taking-toll-on-penguins-study-finds.html
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- Submitted research should not rely upon retracted research. You should avoid citing retracted articles unless you need to discuss retracted work to provide historical context for your submitted research. If it is necessary to discuss retracted work, state the article's retracted status in your article's text and reference list.

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References are listed at the end of the manuscript and numbered in the order that they appear in the text. In the text, cite the reference number in square brackets (e.g., "We used the techniques developed by our colleagues [19] to analyze the data"). PLOS uses the numbered citation (citation-sequence) method and first six authors, et al.

Do not include citations in abstracts.

Make sure the parts of the manuscript are in the correct order *before* ordering the citations.

Formatting references

Because all references will be linked electronically as much as possible to the papers they cite, proper formatting of references is crucial.

PLOS uses the reference style outlined by the International Committee of Medical Journal Editors (ICMJE), also referred to as the "Vancouver" style. Example formats are listed below. Additional examples are in the ICMJE sample references.

A reference management tool, EndNote, offers a current style file that can assist you with the formatting of your references. If you have problems with any reference management program, please contact the source company's technical support.

Journal name abbreviations should be those found in the National Center for Biotechnology Information (NCBI) databases.

Supporting information

Authors can submit essential supporting files and multimedia files along with their manuscripts. All supporting information will be subject to peer review. All file types can be submitted, but files must be smaller than 20 MB in size.

Authors may use almost any description as the item name for a supporting information file as long as it contains an "S" and number. For example, "S1 Appendix" and "S2 Appendix," "S1 Table" and "S2 Table," and so forth.

Supporting information files are published exactly as provided, and are not copyedited.

Supporting information captions

List supporting information captions at the end of the manuscript file. Do not submit captions in a separate file.

The file number and name are required in a caption, and we highly recommend including a one-line title as well. You may also include a legend in your caption, but it is not required.

Example caption

S1 Text. Title is strongly recommended. Legend is optional.

In-text citations

We recommend that you cite supporting information in the manuscript text, but this is not a requirement. If you cite supporting information in the text, citations do not need to be in numerical order.

Read the supporting information guidelines for more details about submitting supporting information and multimedia files.

Figures and tables

Figures

Do not include figures in the main manuscript file. Each figure must be prepared and submitted as an individual file.

Cite figures in ascending numeric order at first appearance in the manuscript file.

Read the guidelines for figures and requirements for reporting blot and gel results.

Figure captions
Figure captions must be inserted in the text of the manuscript, immediately following the paragraph in which the figure is first cited (read order). Do not include captions as part of the figure files themselves or submit them in a separate document.
At a minimum, include the following in your figure captions:

- A figure label with Arabic numerals, and "Figure" abbreviated to "Fig" (e.g. Fig 1, Fig 2, Fig 3, etc). Match the label of your figure with the name of the file uploaded at submission (e.g. a figure citation of "Fig 1" must refer to a figure file named "Fig1.tif").
- A concise, descriptive title

The caption may also include a legend as needed.
Read more about figure captions.
Tables
Cite tables in ascending numeric order upon first appearance in the manuscript file.
Place each table in your manuscript file directly after the paragraph in which it is first cited (read order). Do not submit your tables in separate files.
Tables require a label (e.g., "Table 1") and brief descriptive title to be placed above the table. Place legends, footnotes, and other text below the table.
Read the guidelines for tables.
Statistical reporting
Manuscripts submitted to *PLOS Mental Health* are expected to report statistical methods in sufficient detail for others to replicate the analysis performed. Ensure that results are rigorously reported in accordance with community standards and that statistical methods employed are appropriate for the study design.
Consult the following resources for additional guidance:

- SAMPL guidelines, for general guidance on statistical reporting
- *PLOS Mental Health* guidelines, for clinical trials requirements
- *PLOS Mental Health* guidelines, for systematic review and meta-analysis requirements
- EQUATOR, for specific reporting guidelines for a range of other study types

Reporting of statistical methods
In the methods, include a section on statistical analysis that reports a detailed description of the statistical methods. In this section:

- List the name and version of any software package used, alongside any relevant references
- Describe technical details or procedures required to reproduce the analysis
- Provide the repository identifier for any code used in the analysis (See our code-sharing policy.)

Statistical reporting guidelines:

- Identify research design and independent variables as being between- or within-subjects
- For pre-processed data:
    - Describe any analysis carried out to confirm the data meets the assumptions of the analysis performed (e.g. linearity, co-linearity, normality of the distribution).
    - If data were transformed include this information, with a reason for doing so and a description of the transformation performed
- Provide details of how outliers were treated and your analysis, both with the full dataset and with the outliers removed
- If relevant, describe how missing/excluded data were handled
- Define the threshold for significance (alpha)
- If appropriate, provide sample sizes, along with a description of how they were determined. If a sample size calculation was performed, specify the inputs for power, effect size and alpha. Where relevant, report the number of independent replications for each experiment.
- For analyses of variance (ANOVAs), detail any post hoc tests that were performed
- Include details of any corrections applied to account for multiple comparisons. If corrections were not applied, include a justification for not doing so
- Describe all options for statistical procedures. For example, if t-tests were performed, state whether these were one- or two-tailed. Include details of the type of t-test conducted (e.g. one sample, within-/between-subjects).
- For step-wise multiple regression analyses:
    - Report the alpha level used
    - Discuss whether the variables were assessed for collinearity and interaction
    - Describe the variable selection process by which the final model was developed (e.g., forward-stepwise; best subset). See SAMPL guidelines.

- For Bayesian analysis explain the choice of prior trial probabilities and how they were selected. Markov chain Monte Carlo settings should be reported.

Reporting of statistical results

Results must be rigorously and appropriately reported, in keeping with community standards.

- **Units of measurement.** Clearly define measurement units in all tables and figures.
- **Properties of distribution.** It should be clear from the text which measures of variance (standard deviation, standard error of the mean, confidence intervals) and central tendency (mean, median) are being presented.
- **Regression analyses.** Include the full results of any regression analysis performed as a supplementary file. Include all estimated regression coefficients, their standard error, p-values, and confidence intervals, as well as the measures of goodness of fit.
- **Reporting parameters.** Test statistics (F/t/r) and associated degrees of freedom should be provided. Effect sizes and confidence intervals should be reported where appropriate. If percentages are provided, the numerator and denominator should also be given.
- **P-values.** Report exact p-values for all values greater than or equal to 0.001. P-values less than 0.001 may be expressed as $p < 0.001$, or as exponentials in studies of genetic associations.
- **Displaying data in plots.** Format plots so that they accurately depict the sample distribution. 3D effects in plots can bias and hinder interpretation of values, so avoid them in cases where regular plots are sufficient to display the data.
- **Open data.** As explained in PLOS's Data Policy, be sure to make individual data points, underlying graphs and summary statistics available at the time of publication. Data can be deposited in a repository or included within the Supporting Information files.

Data reporting

All data and related metadata underlying the findings reported in a submitted manuscript should be deposited in an appropriate public repository, unless already provided as part of the submitted article.

See instructions on providing underlying data to support blot and gel results.

Read our policy on data availability.

Repositories may be either subject-specific (where these exist) and accept specific types of structured data, or generalist repositories that accept multiple data types. We recommend that authors select repositories appropriate to their field. Repositories may be subject-specific (e.g., GenBank for sequences and PDB for structures), general, or institutional, as long as DOIs or accession numbers are provided and the data are at least as open as CC BY. Authors are encouraged to select repositories that meet accepted criteria as trustworthy digital repositories, such as criteria of the Centre for Research Libraries or Data Seal of Approval. Large, international databases are more likely to persist than small, local ones.

See our list of recommended repositories.

To support data sharing and author compliance of the PLOS data policy, we have integrated our submission process with a select set of data repositories. The list is neither representative nor exhaustive of the suitable repositories available to authors. Current repository integration partners include Dryad and FlowRepository. Please contact data@plos.org to make recommendations for further partnerships.

Instructions for PLOS submissions with data deposited in an integration partner repository:

- Deposit data in the integrated repository of choice.
- Once deposition is final and complete, the repository will provide you with a dataset DOI (provisional) and private URL for reviewers to gain access to the data.
- Enter the given data DOI into the full Data Availability Statement, which is requested in the Additional Information section of the PLOS submission form. Then provide the URL passcode in the Attach Files section.

If you have any questions, please email us.

Accession numbers

All appropriate data sets, images, and information should be deposited in an appropriate public repository. See our list of recommended repositories.

Accession numbers (and version numbers, if appropriate) should be provided in the Data Availability Statement. Accession numbers or a citation to the DOI should also be provided when the data set is mentioned within the manuscript.

In some cases authors may not be able to obtain accession numbers of DOIs until the manuscript is accepted; in these cases, the authors must provide these numbers at acceptance. In all other cases, these numbers must be provided at full submission.

Identifiers

As much as possible, please provide accession numbers or identifiers for all entities such as genes, proteins, mutants, diseases, etc., for which there is an entry in a public database, for example:

- Ensembl
- Entrez Gene
- FlyBase
- InterPro
- Mouse Genome Database (MGD)
- Online Mendelian Inheritance in Man (OMIM)
- PubChem

Identifiers should be provided in parentheses after the entity on first use.

Striking image

You can choose to upload a "Striking Image" that we may use to represent your article online in places like the journal homepage or in search results.

The striking image must be derived from a figure or supporting information file from the submission, i.e., a cropped portion of an image or the entire image. Striking images should ideally be high resolution, eye-catching, single panel images, and should ideally avoid containing added details such as text, scale bars, and arrows.

If no striking image is uploaded, we will designate a figure from the submission as the striking image.

Striking images should not contain potentially identifying images of people. Read our policy on identifying information.

The PLOS licenses and copyright policy also applies to striking images.

Additional Information Requested at Submission

Financial Disclosure Statement

This information should describe sources of funding that have supported the work. It is important to gather these details prior to submission because your financial disclosure statement cannot be changed after initial submission without journal approval. If your manuscript is published, your statement will appear in the Funding section of the article.

Enter this statement in the Financial Disclosure section of the submission form. Do not include it in your manuscript file.

The statement should include:

- Specific grant numbers
- Initials of authors who received each award
- Full names of commercial companies that funded the study or authors
- Initials of authors who received salary or other funding from commercial companies
- URLs to sponsors' websites

Also state whether any sponsors or funders (other than the named authors) played any role in:

- Study design
- Data collection and analysis
- Decision to publish
- Preparation of the manuscript

If they had no role in the research, include this sentence: "The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript."

If the study was unfunded, include this sentence as the Financial Disclosure statement: "The author(s) received no specific funding for this work."

Read our policy on disclosure of funding sources.

Competing interests

The corresponding author is asked at submission to declare, on behalf of all authors, whether there are any financial, personal, or professional interests that could be construed to have influenced the work.

Any relevant competing interests of authors must be available to editors and reviewers during the review process and will be stated in published articles.

Read our policy on competing interests.

Manuscripts disputing published work

For manuscripts disputing previously published work, it is *PLOS Mental Health* policy to invite a signed review by the disputed author during the peer review process. This procedure is aimed at ensuring a thorough, transparent, and productive review process.

If the disputed author chooses to submit a review, it must be returned in a timely fashion and contain a full declaration of all competing interests. The Academic Editor will consider any such reviews in light of the competing interest.

Authors submitting manuscripts disputing previous work should explain the relationship between the manuscripts in their cover letter, and will be required to confirm that they accept the conditions of this review policy before the manuscript is considered further.

Related manuscripts
Upon submission, authors must confirm that the manuscript, or any related manuscript, is not currently under consideration or accepted elsewhere. If related work has been submitted to *PLOS Mental Health* or elsewhere, authors must include a copy with the submitted article. Reviewers will be asked to comment on the overlap between related submissions.
We strongly discourage the unnecessary division of related work into separate manuscripts, and we will not consider manuscripts that are divided into "parts." Each submission to *PLOS Mental Health* must be written as an independent unit and should not rely on any work that has not already been accepted for publication. If related manuscripts are submitted to *PLOS Mental Health*, the authors may be advised to combine them into a single manuscript at the editor's discretion.
Read our policies on related manuscripts.
Preprints
PLOS encourages authors to post preprints to accelerate the dissemination of research. Posting a manuscript on a preprint server does not impact consideration of the manuscript at any PLOS journal.
Authors posting on medRxiv can choose to concurrently submit their manuscripts to relevant PLOS journals through the direct transfer service.
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Reviewer and editor suggestions
We ask authors to suggest suitable editors and at least four potential reviewers when submitting their manuscript. Bear in mind any potential competing interests when making these suggestions. It is not appropriate to suggest recent collaborators or other researchers at your institution. See our policy on competing interests for more information.
Opposed reviewers
Authors may choose to request that an individual is excluded from the review process and not involved in their manuscript. When making these suggestions, please provide specific reasons why each person should not review your submission in each "Reason" box. The editorial team will respect these requests so long as this does not interfere with the objective and thorough assessment of the submission.
Guidelines for Specific Study Types
Study design, reporting, and analyses are assessed against all relevant research and methodological technique standards held by the community. Guidelines for specific study types are outlined below.
Human subjects research
All research involving human participants must have been approved by the authors' Institutional Review Board (IRB) or by equivalent ethics committee(s), and must have been conducted according to the principles expressed in the Declaration of Helsinki. Authors should be able to submit, upon request, a statement from the IRB or ethics committee indicating approval of the research. We reserve the right to reject work that we believe has not been conducted to a high ethical standard, even when formal approval has been obtained.

Subjects must have been properly instructed and have indicated that they consent to participate by signing the appropriate informed consent paperwork. Authors may be asked to submit a blank, sample copy of a subject consent form. If consent was verbal instead of written, or if consent could not be obtained, the authors must explain the reason in the manuscript, and the use of verbal consent or the lack of consent must have been approved by the IRB or ethics committee.

All efforts should be made to protect patient privacy and anonymity. Identifying information, including photos, should not be included in the manuscript unless the information is crucial and the individual has provided written consent by completing the Consent Form for Publication in a PLOS Journal (PDF). Download additional translations of the form here. More information about patient privacy, anonymity, and informed consent can be found in the International Committee of Medical Journal Editors (ICMJE) Privacy and Confidentiality guidelines.
Manuscripts should conform to the following reporting guidelines:

- Studies of diagnostic accuracy: STARD
- Observational studies: STROBE
- Microarray experiments: MIAME
- Other types of health-related research: Consult the EQUATOR web site for appropriate reporting guidelines

Methods sections of papers on research using human subjects or samples must include ethics statements that specify:

- **The name of the approving institutional review board or equivalent committee(s)**. If approval was not obtained, the authors must provide a detailed statement explaining why it was not needed

- **Whether informed consent was written or oral**. If informed consent was oral, it must be stated in the manuscript:
    - Why written consent could not be obtained
    - That the Institutional Review Board (IRB) approved use of oral consent
    - How oral consent was documented

For studies involving humans categorized by race/ethnicity, age, disease/disabilities, religion, sex/gender, sexual orientation, or other socially constructed groupings, authors should:

- Explicitly describe their methods of categorizing human populations
- Define categories in as much detail as the study protocol allows
- Justify their choices of definitions and categories, including for example whether any rules of human categorization were required by their funding agency
- Explain whether (and if so, how) they controlled for confounding variables such as socioeconomic status, nutrition, environmental exposures, or similar factors in their analysis

In addition, outmoded terms and potentially stigmatizing labels should be changed to more current, acceptable terminology. Examples: “Caucasian” should be changed to “white” or “of [Western] European descent” (as appropriate); “cancer victims” should be changed to “patients with cancer.”

For papers that include identifying, or potentially identifying, information, authors must download the Consent Form for Publication in a PLOS Journal, which the individual, parent, or guardian must sign once they have read the paper and been informed about the terms of PLOS open-access license. The signed consent form should not be submitted with the manuscript, but authors should securely file it in the individual's case notes and the methods section of the manuscript should explicitly state that consent authorization for publication is on file, using wording like:

The individual in this manuscript has given written informed consent (as outlined in PLOS consent form) to publish these case details.

For more information about *PLOS Mental Health* policies regarding human subjects research, see the Publication Criteria and Editorial Policies.

Manuscripts describing observational clinical studies are subject to all policies regarding human research and community standards for reporting observational research as outlined by the STROBE statement. Furthermore, authors submitting work of this nature should pay special attention to the following requirements:

- If the submitted manuscript is very similar to previous work, authors must provide a sound scientific rationale for the submitted work and clearly reference and discuss the existing literature.
- The sampling strategy and eligibility criteria of enrolled subjects should be described in sufficient detail.
- Sample size calculations should be justified with relevant inputs defined.
- Independent and dependent variables considered for statistical analysis should be clearly defined and justified.
- The validity and reliability testing of self-developed data collection tools should be reported.
- Conclusions should be appropriate for the study design, with indications on how the study results will contribute to the base of academic knowledge.

Clinical trials

Clinical trials are subject to all policies regarding human research. *PLOS Mental Health* follows the World Health Organization's (WHO) definition of a clinical trial:

A clinical trial is any research study that prospectively assigns human participants or groups of humans to one or more health-related interventions to evaluate the effects on health outcomes [...] Interventions include but are not restricted to drugs, cells and other biological products, surgical procedures, radiologic procedures, devices, behavioural treatments, process-of-care changes, preventive care, etc.

All clinical trials must be registered in one of the publicly-accessible registries approved by the WHO or ICMJE (International Committee of Medical Journal Editors). Authors must provide the trial registration number. Prior disclosure of results on a clinical trial registry site will not affect consideration for publication. We reserve the right to inform authors' institutions or ethics committees, and to reject the manuscript, if we become aware of unregistered trials.

PLOS Mental Health supports prospective trial registration (i.e. before participant recruitment has begun) as recommended by the ICMJE's clinical trial registration policy. **Where trials were not publicly registered before participant recruitment began**, authors must:

- Register all related clinical trials and confirm they have done so in the Methods section
- Explain in the Methods the reason for failing to register before participant recruitment

Clinical trials must be reported according to the relevant reporting guidelines, i.e. CONSORT for randomized controlled trials, TREND for non-randomized trials, and other specialized guidelines as appropriate. The intervention should be described according to the requirements of the TIDieR checklist and guide. Submissions

must also include the study protocol as supporting information, which will be published with the manuscript if accepted.
Authors of manuscripts describing the results of clinical trials must adhere to the CONSORT reporting guidelines appropriate to their trial design, available on the CONSORT Statement web site. Before the paper can enter peer review, authors must:

- The name of the registry and the registration number must be included in the Abstract.
- Provide a copy of the trial protocol as approved by the ethics committee and a completed CONSORT checklist as supporting information (which will be published alongside the paper, if accepted). This should be named S1 CONSORT Checklist.
- Include the CONSORT flow diagram as the manuscript's "Fig 1"

Any deviation from the trial protocol must be explained in the paper. Authors must explicitly discuss informed consent in their paper, and we reserve the right to ask for a copy of the patient consent form.
The name of the registry and the registry number must be provided in the Abstract. If the trial is registered in more than one location, please provide all relevant registry names and numbers.
Animal research
All research involving vertebrates or cephalopods must have approval from the authors' Institutional Animal Care and Use Committee (IACUC) or equivalent ethics committee(s), and must have been conducted according to applicable national and international guidelines. Approval must be received prior to beginning research.
Manuscripts reporting animal research must state in the Methods section:

- The full name of the relevant ethics committee that approved the work, and the associated permit number(s).
- Where ethical approval is not required, the manuscript should include a clear statement of this and the reason why. Provide any relevant regulations under which the study is exempt from the requirement for approval.
- Relevant details of steps taken to ameliorate animal suffering.

Example ethics statement

This study was carried out in strict accordance with the recommendations in the Guide for the Care and Use of Laboratory Animals of the National Institutes of Health. The protocol was approved by the Committee on the Ethics of Animal Experiments of the University of Minnesota (Protocol Number: 27-2956). All surgery was performed under sodium pentobarbital anesthesia, and all efforts were made to minimize suffering.
Authors should always state the organism(s) studied in the Abstract. Where the study may be confused as pertaining to clinical research, authors should also state the animal model in the title.
To maximize reproducibility and potential for re-use of data, we encourage authors to follow the Animal Research: Reporting of In Vivo Experiments (ARRIVE) guidelines for all submissions describing laboratory-based animal research and to upload a completed ARRIVE Guidelines Checklist to be published as supporting information.
Non-human primates
Manuscripts describing research involving non-human primates must report details of husbandry and animal welfare in accordance with the recommendations of the Weatherall report, *The use of non-human primates in research*, including:

- Information about housing, feeding, and environmental enrichment.
- Steps taken to minimize suffering, including use of anesthesia and method of sacrifice, if appropriate.

Random source animals
Manuscripts describing studies that use random source (e.g. Class B dealer-sourced in the USA), shelter, or stray animals will be subject to additional scrutiny and may be rejected if sufficient ethical and scientific justification for the study design is lacking.
Unacceptable euthanasia methods and anesthetic agents
Manuscripts reporting use of a euthanasia method(s) classified as unacceptable by the American Veterinary Medical Association or use of an anesthesia method(s) that is widely prohibited (e.g., chloral hydrate, ether, chloroform) must include at the time of initial submission, scientific justification for use in the specific study design, as well as confirmation of approval for specific use from their animal research ethics committee. These manuscripts may be subject to additional ethics considerations prior to publication.
Humane endpoints
Manuscripts reporting studies in which death of a regulated animal (vertebrate, cephalopod) is a likely outcome or a planned experimental endpoint, must comprehensively report details of study design, rationale for the approach, and methodology, including consideration of humane endpoints. This applies to research that involves, for instance, assessment of survival, toxicity, longevity, terminal disease, or high rates of incidental mortality.

Definition of a humane endpoint

A humane endpoint is a predefined experimental endpoint at which animals are euthanized when they display early markers associated with death or poor prognosis of quality of life, or specific signs of severe suffering or distress. Humane endpoints are used as an alternative to allowing such conditions to continue or progress to death following the experimental intervention ("death as an endpoint"), or only euthanizing animals at the end of an experiment. Before a study begins, researchers define the practical observations or measurements that will be used during the study to recognize a humane endpoint, based on anticipated clinical, physiological, and behavioral signs. Please see the NC3Rs guidelines for more information. Additional discussion of humane endpoints can be found in this article: Nuno H. Franco, Margarida Correia-Neves, I. Anna S. Olsson (2012) How "Humane" Is Your Endpoint? — Refining the Science-Driven Approach for Termination of Animal Studies of Chronic Infection. PLoS Pathog 8(1): e1002399 doi.org/10.1371/journal.ppat.1002399.
Full details of humane endpoints use must be reported for a study to be reproducible and for the results to be accurately interpreted.
For studies in which death of an animal is an outcome or a planned experimental endpoint, authors should include the following information in the Methods section of the manuscript:

- The specific criteria (i.e. humane endpoints) used to determine when animals should be euthanized.
- The duration of the experiment.
- The numbers of animals used, euthanized, and found dead (if any); the cause of death for all animals.
- How frequently animal health and behavior were monitored.
- All animal welfare considerations taken, including efforts to minimize suffering and distress, use of analgesics or anaesthetics, or special housing conditions.

If humane endpoints were not used, the manuscript should report:

- A scientific justification for the study design, including the reasons why humane endpoints could not be used, and discussion of alternatives that were considered.
- Whether the institutional animal ethics committee specifically reviewed and approved the anticipated mortality in the study design.

Observational and field studies
Methods sections for submissions reporting on any type of field study must include ethics statements that specify:

- Permits and approvals obtained for the work, including the full name of the authority that approved the study; if none were required, authors should explain why
- Whether the land accessed is privately owned or protected
- Whether any protected species were sampled
- Full details of animal husbandry, experimentation, and care/welfare, where relevant

Systematic reviews and meta-analyses
A systematic review paper, as defined by The Cochrane Collaboration, is a review of a clearly formulated question that uses explicit, systematic methods to identify, select, and critically appraise relevant research, and to collect and analyze data from the studies that are included in the review. These reviews differ substantially from narrative-based reviews or synthesis articles. Statistical methods (meta-analysis) may or may not be used to analyze and summarize the results of the included studies.
Reports of systematic reviews and meta-analyses should include a completed PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) checklist and flow diagram to accompany the main text.
Blank templates are available here:

- Checklist: PDF or Word document
- Flow diagram: PDF or Word document

Authors must also state in their "Methods" section whether a protocol exists for their systematic review, and if so, provide a copy of the protocol as supporting information and provide the registry number in the abstract.
If your article is a systematic review or a meta-analysis you should:

- State this in your cover letter
- Select "Research Article" as your article type when submitting
- Include the PRISMA flow diagram as Fig 1 (required where applicable)
- Include the PRISMA checklist as supporting information

Meta-analysis of genetic association studies
Manuscripts reporting a meta-analysis of genetic association studies must report results of value to the field and should be reported according to the guidelines presented in *Systematic Reviews of Genetic Association Studies* by Sagoo *et al.*
On submission, authors will be asked to justify the rationale for the meta-analysis and how it contributes to the base of scientific knowledge in the light of previously published results. Authors will also be asked to complete

a checklist (DOCX) outlining information about the justification for the study and the methodology employed. Meta-analyses that replicate published studies will be rejected if the authors do not provide adequate justification.

Personal data from third-party sources

For all studies using personal data from internet-based and other third-party sources (e.g., social media, blogs, other internet sources, mobile phone companies), data must be collected and used according to company/website Terms and Conditions, with appropriate permissions. All data sources must be acknowledged clearly in the Materials and Methods section.

Read our policy on data availability.

In the Ethics Statement, authors should declare any potential risks to individuals or individual privacy, or affirm that in their assessment, the study posed no such risks. In addition, the following Ethics and Data Protection requirements must be met.

For interventional studies, which impact participants' experiences or data, the study design must have been prospectively approved by an Ethics Committee, and informed consent is required. The Ethics Committee may waive the requirement for approval and/or consent.

For observational studies in which personal experiences and accounts are not manipulated, consultation with an Ethics or Data Protection Committee is recommended. Additional requirements apply in the following circumstances:

- If information used could threaten personal privacy or damage the reputation of individuals whose data are used, an Ethics Committee should be consulted and informed consent obtained or specifically addressed.
- If authors accessed any personal identifying information, an Ethics or Data Protection Committee should oversee data anonymization. If data were anonymized and/or aggregated before access and analysis, informed consent is generally not required.

Note that Terms of Use contracts do not qualify as informed consent, even if they address the use of personal data for research.

See our reporting guidelines for human subjects research.

Cell lines

Authors reporting research using cell lines should state when and where they obtained the cells, giving the date and the name of the researcher, cell line repository, or commercial source (company) who provided the cells, as appropriate.

Authors must also include the following information for each cell line:

For *de novo* (new) cell lines, including those given to the researchers as a gift, authors must follow our policies for human subjects research or animal research, as appropriate. The ethics statement must include:

- Details of institutional review board or ethics committee approval; AND
- For human cells, confirmation of written informed consent from the donor, guardian, or next of kin

For established cell lines, the Methods section should include:

- A reference to the published article that first described the cell line; AND/OR
- The cell line repository or company the cell line was obtained from, the catalogue number, and whether the cell line was obtained directly from the repository/company or from another laboratory

Authors should check established cell lines using the ICLAC Database of Cross-contaminated or Misidentified Cell Lines to confirm they are not misidentified or contaminated. Cell line authentication is recommended – e.g., by karyotyping, isozyme analysis, or short tandem repeats (STR) analysis – and may be required during peer review or after publication.

Blots and gels

Please review *PLOS Mental Health's* requirements for reporting blot and gel results and providing the underlying raw images.

Antibodies

Manuscripts reporting experiments using antibodies should include the following information:

- The name of each antibody, a description of whether it is monoclonal or polyclonal, and the host species.
- The commercial supplier or source laboratory.
- The catalogue or clone number and, if known, the batch number.
- The antigen(s) used to raise the antibody.
- For established antibodies, a stable public identifier from the Antibody Registry.

The manuscript should also report the following experimental details:

- The final antibody concentration or dilution.
- A reference to the validation study if the antibody was previously validated. If not, provide details of how the authors validated the antibody for the applications and species used.

We encourage authors to consider adding information on new validations to a publicly available database such as Antibodypedia or CiteAb.

Methods, software, databases, and tools

PLOS Mental Health will consider submissions that present new methods, software, databases, or tools as the primary focus of the manuscript if they meet the following criteria:

Utility

The tool must be of use to the community and must present a proven advantage over existing alternatives, where applicable. Recapitulation of existing methods, software, or databases is not useful and will not be considered for publication. Combining data and/or functionalities from other sources may be acceptable, but simpler instances (i.e. presenting a subset of an already existing database) may not be considered. For software, databases, and online tools, the long-term utility should also be discussed, as relevant. This discussion may include maintenance, the potential for future growth, and the stability of the hosting, as applicable.

Validation

Submissions presenting methods, software, databases, or tools must demonstrate that the new tool achieves its intended purpose. If similar options already exist, the submitted manuscript must demonstrate that the new tool is an improvement over existing options in some way. This requirement may be met by including a proof-of-principle experiment or analysis; if this is not possible, a discussion of the possible applications and some preliminary analysis may be sufficient.

Availability

If the manuscript's primary purpose is the description of new software or a new software package, this software must be open source, deposited in an appropriate archive, and conform to the Open Source Definition. If the manuscript mainly describes a database, this database must be open-access and hosted somewhere publicly accessible, and any software used to generate a database should also be open source. If relevant, databases should be open for appropriate deposition of additional data. Dependency on commercial software such as Mathematica and MATLAB does not preclude a paper from consideration, although complete open source solutions are preferred. In these cases, authors should provide a direct link to the deposited software or the database hosting site from within the paper. If the primary focus of a manuscript is the presentation of a new tool, such as a newly developed or modified questionnaire or scale, it should be openly available under a license no more restrictive than CC BY.

Software submissions

Manuscripts whose primary purpose is the description of new software must provide full details of the algorithms designed. Describe any dependencies on commercial products or operating system. Include details of the supplied test data and explain how to install and run the software. A brief description of enhancements made in the major releases of the software may also be given. Authors should provide a direct link to the deposited software from within the paper.

Database submissions

For descriptions of databases, provide details about how the data were curated, as well as plans for long-term database maintenance, growth, and stability. Authors should provide a direct link to the database hosting site from within the paper.

Read the PLOS policy on sharing materials, software and code.

Qualitative research

Qualitative research studies use non-quantitative methods to address a defined research question that may not be accessible by quantitative methods, such as people's interpretations, experiences, and perspectives. The analysis methods are explicit, systematic, and reproducible, but the results do not involve numerical values or use statistics. Examples of qualitative data sources include, but are not limited to, interviews, text documents, audio/video recordings, and free-form answers to questionnaires and surveys.

Qualitative research studies should be reported in accordance to the Consolidated criteria for reporting qualitative research (COREQ) checklist or Standards for reporting qualitative research (SRQR) checklist.

Further reporting guidelines can be found in the Equator Network's Guidelines for reporting qualitative research.

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PLOS Mental Health is funded by a new model called PLOS Global Equity. Institutions pay a single, annual fee to provide unlimited publication support for their authors. Corresponding authors from non-participating institutions are subject to APCs.

To find out if your corresponding author's institution has signed up, please visit our institutional partners page and search by institutional name or by the agreement type "Global Equity."

Please follow these instructions to ensure that your institutional affiliation is captured correctly.

If your corresponding author is not from a participating institution and requires assistance paying publishing fees, please consider applying for a fee waiver at submission.

Appendix B: SRL Search Strategy

“Acceptance and commitment therapy” OR ACT OR “Dialectical behavior therapy” OR “Dialectical behaviour therapy” OR DBT OR “Mindfulness-based cognitive therapy” OR MBCT OR “Mindfulness-based interventions” OR MBI OR Mindfulnes* OR Metacognit* OR “Compassionate Mind training” OR CMT OR “compassion focused therapy” OR CFT OR compassi* OR “Mindfulness-based stress reduction” OR MBSR OR “Behavioural activation” OR “behavioral activation” OR “third-wave” OR “third-wave therapy” OR “schema therapy” OR "compassion-based" OR "compassion based" OR "self compassion" OR "compassion focussed therapy" OR "compassion focus" OR "compassion-focus" OR "Compassion Cultivation Training" OR "CCT" OR "Cognitively-based Compassion Training" OR cbct OR "Mindfulness-based Compassionate Living" OR mbcl OR "Mindful-Self Compassion" OR msc

AND TITLE-ABS-KEY (carer* OR caregiv* OR parent* OR famil* OR mother* OR mum* OR siblin* OR brothe* OR siste* OR materna* OR paterna* OR mom* OR papa* OR dad* OR caretaker*

AND TITLE-ABS-KEY (autism OR autistic OR autis* OR neurodevelop* OR "neurodevelopment condition" OR neurodiv* OR developmental* OR "developmental disorder" OR "developmental condition"

Alternative format

("Acceptance commitment therapy" or ACT or "Dialectical behavior therapy" or "Dialectical behaviour therapy" or DBT or "Mindfulness-based cognitive therapy" or MBCT or "Mindfulness-based interventions" or MBI or Mindfulnes* or Metacognit* or "Compassionate Mind training" or CMT or "compassion focused therapy" or CFT or compassi* or "Mindfulness-based stress reduction" or MBSR or "Behavioural activation" or "behavioral activation" or "third-wave" or "third-wave therapy" or "schema therapy" or "compassion-based" or "compassion based" or "self compassion" or "compassion focussed therapy" or "compassion focus" or "compassion-focus" or "Compassion Cultivation Training" or "CCT" or "Cognitively-based Compassion Training" or cbct or "Mindfulness-based Compassionate Living" or mbcl or "Mindful-Self Compassion" or msc).ab.

2. (carer* or caregiv* or parent* or famil* or mother* or mum* or siblin* or brothe* or siste* or materna* or paterna* or mom* or papa* or dad* or caretaker*).ab.

3. (autism or autistic or autis* or neurodevelop* or "neurodevelopment condition" or neurodiv* or developmental* or "developmental disorder" or "developmental condition").ab.

4. 1 and 2 and 3

5. limit 4 to apa psycarticles journals

6. limit 5 to human

7. limit 6 to journal article

8. limit 7 to original articles

9. limit 8 to (reports or article)

10. limit 9 to english language

11. limit 10 to full text

12. remove duplicates from 11

Appendix C: SRL Downs and Black Quality Appraisal Ratings.

	REPORTING									
	1. Is the hypothesis/aim of the study clearly described? **(Yes = 1, No = 0)**	2. Are the main outcomes to be measured clearly described in the Introduction or Methods section? **(Yes = 1, No = 0)**	3. Are the characteristics of the patients included in the study clearly described? **(Yes = 1, No = 0)**	4. Are the interventions of interest clearly described? **(Yes = 1, No = 0)**	6. Are the distributions of principal confounders in each group of subjects to be compared clearly described? **(Yes = 2, Partially = 1, No = 0)**	6. Are the main findings of the study clearly described? **(Yes = 1, No = 0)**	7. Does the study provide estimates of the random variability in the data for the main outcomes? **(Yes = 1, No = 0)**	8. Have all important adverse events that may be a consequence of the intervention been reported? **(Yes = 1, No = 0)**	9. Have the characteristics of patients lost to follow-up been described? **(Yes = 1, No = 0)**	10. Have actual probability values been reported (e.g. 0.036 rather than <0.06) for the main outcomes? **(Yes = 1, No = 0)**
Bellone et al (2023) [50].	1	1	1	1	2	1	1	1	1	1
Blackledge & Hayes (2006) [31].	1	1	1	1	2	1	1	0	0	1
Cañón et al (2023) [39].	1	1	1	1	2	1	1	0	1	1
Curl & Hampton (2024) [53].	1	1	1	1	1	1	1	1	1	1
Fernández-Carriba et al (2019) [24].	1	1	1	1	1	1	1	1	0	1
Fung et al (2018) [40].	1	1	1	1	1	1	1	1	1	1
Hahs et al (2019) [60].	1	1	1	1	2	1	1	1	0	1
Hwang et al (2016) [48].	1	1	1	1	1	1	1	0	0	1
Lobato et al (2023) [45].	1	1	1	1	1	1	1	1	1	1
Lunsky et al (2021) [41[.	1	1	1	1	1	1	1	1	0	1
Lunsky et al (2018) [59].	1	1	1	1	2	1	1	0	1	1
Maughan et al (2024) [42].	1	1	1	1	2	1	1	1	1	1
Neece et al (2024) [56].	1	1	1	1	2	1	1	1	1	1
Rayan & Ahmad (2016) [57].	1	1	1	1	2	1	1	1	1	1
Rojas-Torres et al (2023) [62].	1	1	0	1	1	1	1	1	1	1

Ruiz-Robledillo et al (2016) [52].	1	1	1	1	1	1	1	1	1	1
Uramoto et al (2023) [46].	1	1	0	1	0	1	0	1	1	1

	EXTERNAL VALIDITY			**INTERNAL VALIDITY: BIAS**						
	11. Were the subjects asked to participate in the study representative of the entire population from which they were recruited? **(Yes = 1, No = 0, Unable to determine = 0)**	12. Were those subjects who were prepared to participate representative of the entire population from which they were recruited? **(Yes = 1, No = 0, Unable to determine = 0)**	13. Were the staff, places, and facilities where the patients were treated, representative of the treatment the majority of patients receive? **(Yes = 1, No = 0, Unable to determine = 0)**	14. Was an attempt made to blind subjects to the intervention they have received? **(Yes = 1, No = 0, Unable to determine = 0)**	16. Was an attempt made to blind those measuring the main outcomes of the intervention? **(Yes = 1, No = 0, Unable to determine = 0)**	16. If any of the results of the study were based on "data dredging", was this made clear? **(Yes = 1, No = 0, Unable to determine = 0)**	17. In trials and cohort studies, do the analyses adjust for different lengths of follow-up of patients, or in case-control studies, is the time period between the intervention and outcome the same for cases and controls? **(Yes = 1, No = 0, Unable to determine = 0)**	18. Were the statistical tests used to measure the main outcomes appropriate? **(Yes = 1, No = 0, Unable to determine = 0)**	19. Was compliance with the intervention/s reliable? **(Yes = 1, No = 0, Unable to determine = 0)**	20. Was the main outcome measures used accurate (valid and reliable)? **(Yes = 1, No = 0, Unable to determine = 0)**
Bellone et al (2023) [50].	1	1	1	0	0	0	1	1	1	1
Blackledge & Hayes (2006) [31].	0	1	1	0	0	0	1	1	1	1
Cañón et al (2023) [39].	1	1	1	0	0	0	1	1	1	1
Curl & Hampton (2024) [53].	1	1	1	0	0	0	0	1	1	1
Fernández-Carriba et al (2019) [24].	1	1	1	0	0	0	1	1	1	1
Fung et al (2018) [40].	1	1	1	0	0	0	1	1	1	1
Hahs et al (2019) [60].	1	1	1	1	1	0	1	1	1	1
Hwang et al (2016) [48].	1	0	1	0	0	0	1	1	1	1
Lobato et al (2023) [45].	1	0	1	1	1	1	1	1	1	1
Lunsky et al (2021) [41[.	1	1	1	0	0	1	1	1	1	1
Lunsky et al (2018) [59].	1	1	1	0	0	0	1	1	1	1
Maughan et al (2024) [42].	1	1	1	1	1	0	1	1	1	1

Neece et al (2024) [56].	1	1	1	1	1	0	1	1	1	1
Rayan & Ahmad (2016) [57].	1	1	1	1	1	0	1	1	1	1
Rojas-Torres et al (2023) [62].	1	1	1	0	0	0	1	1	1	1
Ruiz-Robledillo et al (2016) [52].	1	1	1	0	0	0	1	1	1	1
Uramoto et al (2023) [46].	1	1	1	0	0	0	1	1	1	1

	INTERNAL VALIDITY: CONFOUNDING (SELECTION BIAS)						**POWER**	**OVERALL SCORE**	**OVERALL RATING**
	21. Were the patients in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited from the same population? **(Yes = 1, No = 0, Unable to determine = 0)**	22. Were the study subjects in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited over the same period of time? **(Yes = 1, No = 0, Unable to determine = 0)**	23. Were study subjects randomised to intervention groups? **(Yes = 1, No = 0, Unable to determine = 0)**	24. Was the randomised intervention assignment concealed from both patients and health care staff until recruitment was complete and irrevocable? **(Yes = 1, No = 0, Unable to determine = 0)**	25. Was there adequate adjustment for confounding in the analyses from which the main findings were drawn? **(Yes = 1, No = 0, Unable to determine = 0)**	26. Were losses of patients to follow-up taken into account? **(Yes = 1, No = 0, Unable to determine = 0)**	27. Did the study have sufficient power to detect a clinically important effect where the probability value for difference being due to chance is less than 6%? **(If power calculation is reported/made reference to score yes (1), if power is not mentioned score no (0) even if effect sizes are reported.)**		Excellent (26-28); good (20-26); fair (16-19); and poor (<14)
Bellone et al (2023) [50].	1	1	0	0	1	0	1	**22**	**Good**
Blackledge & Hayes (2006) [31].	1	1	0	0	1	1	1	**20**	**Good**
Cañón et al (2023) [39].	1	1	0	0	1	1	1	**23**	**Good**
Curl & Hampton (2024) [53].	1	1	0	0	1	0	0	**20**	**Good**
Fernández-Carriba et al (2019) [24].	1	1	0	0	0	0	1	**19**	**Fair**
Fung et al (2018) [40].	1	1	0	0	1	0	0	**20**	**Good**
Hahs et al (2019) [60].	1	1	1	1	1	0	1	**26**	**Good**
Hwang et al (2016) [48].	1	1	0	0	0	1	0	**18**	**Fair**

Lobato et al (2023) [45].	1	1	1	1	1	1	1	**26**	**Excellent**
Lunsky et al (2021) [41[.	1	1	0	0	1	1	1	**22**	**Good**
Lunsky et al (2018) [59].	1	1	0	0	1	1	0	**21**	**Good**
Maughan et al (2024) [42].	1	1	1	1	1	1	1	**27**	**Excellent**
Neece et al (2024) [56].	1	1	1	1	1	1	0	**26**	**Excellent**
Rayan & Ahmad (2016) [57].	1	1	1	1	1	1	1	**27**	**Excellent**
Rojas-Torres et al (2023) [62].	1	1	0	0	1	1	1	**21**	**Good**
Ruiz-Robledillo et al (2016) [52].	1	1	0	0	1	1	0	**20**	**Good**
Uramoto et al (2023) [46].	1	0	0	0	0	1	0	**16**	**Fair**

Appendix D. SIP Journal Guidelines

Early Intervention in Psychiatry

Author Guidelines

Sections

1. Submission

2. Aims and Scope

3. Manuscript Categories and Requirements

4. Preparing the Submission

5. Formatting for Revised Manuscript

6. Editorial Policies and Ethical Considerations

7. Author Licensing

8. Publication Process After Acceptance

9. Post Publication

10. Editorial Office Contact Details

1. SUBMISSION

Thank you for your interest in Early Intervention in Psychiatry. Authors should kindly note that submission implies that the content has not been published or submitted for publication elsewhere except as a brief abstract in the proceedings of a scientific meeting or symposium.

Once the submission materials have been prepared in accordance with the Author Guidelines, manuscripts submissions should be made via the Research Exchange submission portal. You may check the status of your submission at any time by logging on to submission.wiley.com and clicking the “My Submissions” button. For technical help with the submission system, please review our FAQs or contact submissionhelp@wiley.com. For any queries regarding submission, please contact eip.eo@wiley.com.

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Early Intervention in Psychiatry will consider for review articles previously available as preprints. You may also post the submitted version of a manuscript to a preprint server at any time. You are requested to update any pre-publication versions with a link to the final published article.

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We look forward to your submission.

2. AIMS AND SCOPE

Early Intervention in Psychiatry publishes original research articles and reviews dealing with the early recognition, diagnosis and treatment across the full range of mental and substance use disorders, as well as the underlying epidemiological, biological, psychological and social mechanisms that influence the onset and early course of these disorders. The journal provides comprehensive coverage of early intervention for the full range of psychiatric disorders and mental health problems, including schizophrenia and other psychoses, mood and anxiety disorders, substance use disorders, eating disorders and personality disorders. Papers in any of the following fields are considered: diagnostic issues, psychopathology, clinical epidemiology, biological mechanisms, treatments and other forms of intervention, clinical trials, health services and economic research and mental health policy. Special features are also published, including hypotheses, controversies and snapshots of innovative service models.

In contrast with mainstream healthcare, early diagnosis and intervention has come late to the field of psychiatry. Early Intervention in Psychiatry creates a common forum for researchers and clinicians with an interest in the early phases of a wide range of disorders to share ideas, experience and data. This journal not only fills a gap, but also creates a new frontier in academic and clinical psychiatry.

3. MANUSCRIPT CATEGORIES AND REQUIREMENTS

Articles reporting original work that embodies scientific excellence in psychiatry and advances in clinical research (suggested word count for text 3000; abstract maximum 250);

Reviews which synthesize important information on a topic of general interest to early intervention in psychiatry (suggested word count for text 5000; abstract maximum 250);

Brief Reports which present original research that makes a single point, or negative studies of important topics (suggested word count for text 1500; abstract maximum150);

Early Intervention in the Real World, a special features section which focuses on issues such as service descriptions and delivery, and clinical practice guidelines (suggested word count for text 3000; abstract maximum 250);

Editorials or Hypotheses. Please contact the editorial office before writing an Editorial or Hypotheses article for the journal (suggested word count for text 1000);

4. PREPARING THE SUBMISSION

Wiley Author Resources

Manuscript Preparation Tips: Wiley has a range of resources for authors preparing manuscripts for submission available here. In particular, authors may benefit from referring to Wiley's best practice tips on Writing for Search Engine Optimization.

Article Preparation Support: Wiley Editing Services offers expert help with English Language Editing, as well as translation, manuscript formatting, figure illustration, figure formatting, and graphical abstract design – so you can submit your manuscript with confidence. Also, check out our resources for Preparing Your Article for general guidance about writing and preparing your manuscript.

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EIP now offers Free Format submission for a simplified and streamlined submission process. Before you submit, you will need:

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The title page of the manuscript, including:

o Your co-author details, including affiliation and email address. (Why is this important? We need to keep all co-authors informed of the outcome of the peer review process.)

o Statements relating to our ethics and integrity policies, which may include any of the following (Why are these important? We need to uphold rigorous ethical standards for the research we consider for publication):

o data availability statement

o funding statement

o conflict of interest disclosure

o ethics approval statement

o patient consent statement

o permission to reproduce material from other sources

o clinical trial registration

Main Text File

Manuscripts can be uploaded either as a single document (containing the main text, tables and figures), or with figures and tables provided as separate files. Should your manuscript reach revision stage, figures and tables must be provided as separate files. The main manuscript file can be submitted in Microsoft Word (.doc or .docx).

Your main document file should include:

· A short informative title containing the major key words. The title should not contain abbreviations;

· The full names of the authors with institutional affiliations where the work was conducted, with a footnote for the author's present address if different from where the work was conducted;

· Acknowledgments;

· Abstract structured (intro/methods/results/conclusion) or unstructured; Original Article, Review, Brief Report, Early Intervention in the Real World submissions must have an abstract that states in 250 words (150 words for Brief Reports) or fewer the purpose, basic procedures, main findings and principal conclusions of the study. The abstract should not contain abbreviations or references.

· Up to seven keywords; for the purposes of indexing, keywords should be supplied below the abstract, in alphabetical order, and should be taken from those recommended by the US National Library of Medicine's Medical Subject Headings (MeSH) browser list at http://www.nlm.nih.gov/mesh/meshhome.html.

· Practitioner Points (optional) Authors will need to provide no more than 3 'key points', written with the practitioner in mind, that summarize the key messages of their paper to be published with their article;

· Main body: preferably formatted as introduction, materials & methods, results, discussion, conclusion;

· References;

· Tables (each table complete with title and footnotes);

· Figure legends: Legends should be supplied as a complete list in the text.

5. FORMATTING FOR REVISED MANUSCRIPT

Style

Spelling. The journal uses UK spelling and authors should therefore follow the latest edition of the Concise Oxford Dictionary.

Units. All measurements must be given in SI or SI-derived units. Please go to the Bureau International des Poids et Mesures (BIPM) website at http://www.bipm.fr for more information about SI units.

Abbreviations. Abbreviations should be used sparingly – only where they ease the reader's task by reducing repetition of long, technical terms. Initially use the word in full, followed by the abbreviation in parentheses. Thereafter use the abbreviation only.

Trade names. Drugs should be referred to by their generic names. If proprietary drugs have been used in the study, refer to these by their generic name, mentioning the proprietary name, and the name and location of the manufacturer, in parentheses.

Acknowledgments

Contributions from anyone who does not meet the criteria for authorship should be listed, with permission from the contributor, in an Acknowledgments section. Financial and material support should also be mentioned. Thanks to anonymous reviewers are not appropriate.

References

Preferably, references should be prepared according to the Publication Manual of the American Psychological Association (6th edition). This means in text citations should follow the author-date method whereby the author's last name and the year of publication for the source should appear in the text, for example, (Jones, 1998). The complete reference list should appear alphabetically by name at the end of the paper.

A sample of the most common entries in reference lists appears below. Note that for journal articles, issue numbers are not included unless each issue in the volume begins with page one, and a DOI should be provided for all references where available.

Journal article

Beers, S. R. , & De Bellis, M. D. (2002). Neuropsychological function in children with maltreatment-related posttraumatic stress disorder. The American Journal of Psychiatry, 159, 483–486. doi:10.1176/appi.ajp.159.3.483

Book

Bradley-Johnson, S. (1994). Psychoeducational assessment of students who are visually impaired or blind: Infancy through high school (2nd ed.). Austin, TX: Pro-ed.

Internet Document

Norton, R. (2006, November 4). How to train a cat to operate a light switch [Video file]. Retrieved from http://www.youtube.com/watch?v=Vja83KLQXZs

Tables

Tables should be self-contained and complement, not duplicate, information contained in the text. They should be supplied as editable files, not pasted as images. Legends should be concise but comprehensive – the table, legend, and footnotes must be understandable without reference to the text. All abbreviations must be defined in footnotes. Footnote symbols: †, ‡,

§, ¶, should be used (in that order) and *, **, *** should be reserved for P-values. Statistical measures such as SD or SEM should be identified in the headings.

Figure Legends

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

Figures

Although authors are encouraged to send the highest-quality figures possible, for peer-review purposes, a wide variety of formats, sizes, and resolutions are accepted. Click here for the basic figure requirements for figures submitted with manuscripts for initial peer review, as well as the more detailed post-acceptance figure requirements.

Supporting Information

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

Click here for Wiley's FAQs on supporting information.

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

6. EDITORIAL POLICIES AND ETHICAL CONSIDERATIONS

Peer Review and Acceptance

Manuscripts are judged on the significance of the contribution to the literature, the quality of analysis and the clarity of presentation. Papers are expected to demonstrate originality and meaningful engagement with the global literature.

Except where otherwise stated, manuscripts are single-blind peer reviewed by anonymous reviewers in addition to the Editor. Final acceptance or rejection rests with the Editor-in-Chief, who reserves the right to refuse any material for publication.

Wiley's policy on the confidentiality of the review process is available here.

Authorship Policy

The journal adheres to the definition of authorship as set out by The International Committee of Medical Journal Editors (ICMJE). The ICMJE recommends that authorship be based on the following 4 criteria:

• Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND

• Drafting the work or revising it critically for important intellectual content; AND

• Final approval of the version to be published; AND

• Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

In addition to being accountable for the parts of the work he or she has done, an author should be able to identify which co-authors are responsible for specific other parts of the work. In addition, authors should have confidence in the integrity of the contributions of their co-authors. All those designated as authors should meet all four criteria for authorship, and all who meet the four criteria should be identified as authors.

Correction to authorship

In accordance with Wiley's Best Practice Guidelines on Research Integrity and Publishing Ethics and the Committee on Publication Ethics' guidance, Early Intervention in Psychiatry will allow authors to correct authorship on a submitted, accepted, or published article if a valid reason exists to do so. All authors – including those to be added or removed – must agree to any proposed change. To request a change to the author list, please complete the Request for Changes to a Journal Article Author List Form and contact either the journal's editorial or production office, depending on the status of the article. Authorship changes will not be considered without a fully completed Author Change form. [Correcting the authorship is different from changing an author's name; the relevant policy for that can be found in Wiley's Best Practice Guidelines under "Author name changes after publication."]

Human Studies and Subjects

For manuscripts reporting medical studies that involve human participants, a statement identifying the ethics committee that approved the study and confirmation that the study conforms to recognized standards is required, for example: Declaration of Helsinki; US Federal Policy for the Protection of Human Subjects; or European Medicines Agency Guidelines for Good Clinical Practice. It should also state clearly in the text that all persons gave their informed consent prior to their inclusion in the study.

Patient anonymity should be preserved. Photographs need to be cropped sufficiently to prevent human subjects being recognized (or an eye bar should be used). Images and information from individual participants will only be published where the authors have obtained the individual's free prior informed consent. Authors do not need to provide a copy of the consent form to the publisher; however, in signing the author license to publish, authors are required to confirm that consent has been obtained. Wiley has a standard patient consent form available for use.

Case Reports. In general, submission of a case report should be accompanied by the written consent of the subject (or parent/guardian) before publication; this is particularly important where photographs are to be used or in cases where the unique nature of the incident reported makes it possible for the patient to be identified. While the Editorial Board recognizes that it might not always be possible or appropriate to seek such consent, the onus will be on the authors to demonstrate that this exception applies in their case.

Use of Animals in Research

Any experiments involving animals must be demonstrated to be ethically acceptable and where relevant conform to national guidelines for animal usage in research.

Data Sharing and Data Accessibility

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Appendix E. SIP Survey Questions

Survey questions including questions taken from Cooper et al's study design accompanied by results (in addition to questions stated in Table 1).

i-

1. What is your age?
2. How do you describe your gender?
3. What is your ethnicity?
4. What is your profession?
5. How long have you been providing psychological therapy (including training)?
6. Do you have a diagnosis of ASD or ADHD?
7. What is your current caseload for psychological therapy? Please feel free to separate this by a) individual therapy b) family work)
8. What percentage of your current caseload has a diagnosis of ASD or is strongly suspected to have ASD? (Is this representative of your typical caseload)?
9. What training have you received within your service relating to autism? (eg Oliver McGowan- online training).

ii-

Select all the therapuetic approaches/ techniques you use when working with ASD and/or ADHD within your current service.	N (%)
Cognitive behavioural therapy	11 (100)
Solution focused therapy	1 (9)
Behavioural family therapy	7 (63)
Dialectical behaviour therapy	1 (9)
Narrative exposure therapy	3 (27)
Mentalisation based therapy	0 (0)
Interpersonal therapy	0 (0)
Exposure and response prevention	2 (18)

Acceptance and commitment therapy	7 (63)
Cognitive analytic therapy	0 (0)
Cognitive remediation therapy	1 (9)
Eye movement desensitisation and reprocessing	5 (45)
Video interactive guidance	1 (9)
Other	6 (54)

iii-

Please select all of the adaptions you have made when working with people with ASD and/or ADHD.	**N (%)**
Provide structure and predictability (e.g., routines, transition activities)	11 (100)
Make use of special interests (e.g., include individual interests as part of	8 (73)
therapy)	9 (81)
Make abstract concepts more concrete	9 (81)
Support with processing verbal information (e.g., simplifying language)	8 (73)
Capitalize on strengths (e.g., intelligence and acquisition of new	9 (81)
information)	7 (63)
Minimize sensory distraction (e.g., adjusting lights and sounds)	6 (54)
Involving family members in sessions	5 (45)
Length of sessions: Shorter	5 (45)
Length of sessions: Longer	5 (45)
Environment (e.g., sensory area, relaxation area: mats or bean bag chair,	6 (54)
visual aids)	3 (27)
Provide detailed information	5 (45)
Provide opportunities for generalization and ongoing practice	0 (0)
Reduce anxiety with distancing techniques	1 (9)
Minimize executive functioning difficulties	
None	
Other	

iv-

How would you rate your knowledge of the following domains in relation to ASD (Where 1 is not at all knowledgeable, and 5 is extremely knowledgeable).	**Mean**
Autism: Core symptoms	3.2
Autism: co-occuring problems	3
Autism: impact on behaviour	3.1
Autism: treatment planning	2.9
Autism: delivering treatment	2.9
Autism: identifying progress	2.7

v- Additional questions tailored to the service, added to the TCS-ASD.

How confident do you feel in enacting therapeutic activities that are common across many psychosocial interventions with autistic people in your current service (1= not at all confident, 5= extremely confident)? (TCS-ASD).	**Mean (SD)**
Formulate an ASD client's challenges within a CBTp model	3.09 (0.94)
Retain a flexible concept of ASD needs, to fit an individual	3.27 (0.64)
Identifying ASD traits within a therapeutic context	3 (1.00)
Support motivation and engagement in therapy with ASD clients	3.36 (0.81)
Modifying intervention techniques eg. coping skills for managing voices, exploring the evidence for unusual and distressing beliefs, and increasing functioning by addressing negative symptoms.	3 (0.63)
Supporting skill consolidation and active participation	2.91 (0.70)

Appendix F. SIP Focus Group Semi-structured Questions

1. What would you like to know more about?
    a. How do we retain a person centered view of all clients, while holding different elements of an individual in mind ie. neurodiversity, ethnicity, class, etc?

2. How can this be done in a way that increases confidence/ competence?
    a. How can we increase confidence in being person centered and flexible?
    b. What levels of service could support this- individual? Dyad? group/ service? Health board? What are we already using these spaces for, is there practically room in these existing spaces? Do new spaces need to be developed?
    c. How do we balance need and feasibility in introducing this?
    d. When have you felt confident in other areas as a practitioner? Why was that, what helped?
    e. How can you foster and share knowledge from your different backgrounds together?
    f. How can you create a space of not knowing and wanting to ask? What will make this safe?
    g. In areas where you have increased knowledge and confidence, what helped you to feel like that? How would you support others to increase this/ how could this be applied in the current context?
    h. Are there any examples from previous services or work that might be relevant?
    i. Are there any barriers to neurodiversity competency? What are these and how might they be addressed?
    j. Are there any other individual factors that could be relevant for discussion?
    k. When thinking specifically about the model of CBTp, are there any adaptations where confidence is high? Or not? Is there space to reflect on this currently and would this increase confidence?

Appendix G. SIP Thematic analysis with example quotes

Theme	Sub theme	Example Quotes
Learning	Learning from each other	"We do have a psychology CPD slot… and we did have one once where we watched it was Elsa Russell, and we've been adapting CBT for autistic people, but we could have more where we bring those things together. Couldn't we and sort of think about shared practice?"
		"we have CPD slots where we try to identify things either that we want to know more about as a group or trainings that people have been on that they can disseminate back"
		"[we watched a] webinar by Elsa Russell that we were able to access through BABCP, I thought that was really helpful. We watched it together and then watching it together gives us an opportunity as a group to talk about clients that we've worked with or bits that we think are helpful or you know that we're going to try"
		"All the therapists have supervision"
		"I think we could use more formulation in supervision . Do you think you know and just thinking about supervision I give and receive."
		"just thinking about supervision as well, again, that's really helpful for me to to think about the different adaptations that might be appropriate. just kind of taking a bit of a zoom out, I suppose to think"
		"…conversations happen in supervision, don't they? So if you knew and there was a diagnosis, you'd take that into account"

Theme	Sub theme	Example Quotes
		“have space in team meetings for complex cases or hard to engage cases already. That's not autism specific, but certainly could be if that was a complexity that people wanted to bring”
		“you could include other people you know, support workers and stuff in that sort of peer support workers might be [helpful]”
		“kind of joint approach of not being too set, but you know the therapist needs to be talking with the care Co and the wider team so that everybody kind of knows”
		“we have got resources . You know, we've got [] who's the psychologist in the other team who got a lot of resources”
		“And we're very lucky because [] has obviously got expertise in that area and so’s [] and so they are able to, you know, give us that training within the team”
		“If there's a discussion at the MDT about somebody who's hard to engage or complex case, she'll say let's talk about it. Let's try and formulate this and you know.
		See how we can manage it, which is really helpful so”
		“We did like a case presentation or something about six months ago, didn't we in in the CPD slot that was quite helpful . It was like the tough cases. So it could be that once in a while we bring a theme of cases and present good practise and and difficult challenge and more challenging situations”
		“[Occupational therapist] supervision”

Theme	Sub theme	Example Quotes
		“that's kind of sharing examples. Clinical examples is really helpful for me. So you know, I know when we've had discussions”
	Learning from experts	“having the training is the next most helpful thing”
		“whole team training is helpful as well as supervision”
		“on another [training] adapting CBT for neurodivergent adults, which that was available at OCTC and then we sort of fed back to the group in our sort of local CPD slot on that.”
		“[is there anyone that] could give us any training on that aspect, you know, cultural aspects of neurodiversity”
		“everybody's having their awareness raised, but I don't, I haven't really heard anyone saying all that Oliver McGowan training was great”
		“just going back to my personal experience”
		“as an amp and it was a professional that himself had autism that presented the training and that was really good”
		“working with people with autism, which I think builds your confidence the most because you get to see all the different ways people present”
		“But I think having it from a client from that in terms of this is the presentation formulation. This is what's been going well. This is what's been difficult. I think that's very helpful”

Theme	Sub theme	Example Quotes
		"We've also got the reasonable adjustments team in our office . So we do get to hear a lot of there's we can go to them and and kind of run things past them. They've been really helpful" "[ideally need] a therapist that specialises in ASD cases"
		"Reasonable adjustments team… they've been to our meetings and yeah, we work really closely… But they're quite new and I think they're still learning as well really."
		"I don't know if the relationship is quite so positive over here with the Reasonable Adjustment Service… they've been consulted a couple of times, but the the result has not been helpful particularly"
	Research, models and processes	"I think there are things that you would automatically ask a person that you did know had autism… maybe what I'm thinking is it's about asking everybody that question because if we if we don't know or we are not about to find out through because diagnosis is you know a six month waiting list away"
		"I wonder what stops us from doing that [asking everyone about adjustments]? Are we scared of what people might ask for or like we can't deliver it?"
		"you could have a checklist 'cause you're having lots of things in mind, which you should do and you should be person centred… we're only human because the other thing there are other diversities as well, In thinking about the person sort of age and background and sort of historical context. So that might be useful just to kind of have a yeah, framework when you're formulating."
		"safest route is to being accommodating to everybody and to people with varying needs is to ask everybody what can how can we make therapy work for you and what adaptations would be useful"

Theme	Sub theme	Example Quotes
		“we've got a couple of projects. Psychology projects a quality diversity sort of project, making sure that we keep our awareness and knowledge up and that the other ones like the autism projects, which is part of this sort of auditing”
		“I've got lots of studies that I've I've started trying to pull things from all this training that I've been on to make some sort of workable document I don't think unless Oxford’s has done anything different
		But I have got that in documents that I can refer to, but I haven't like got a resource that's shared that probably is a good idea . If anyone's got time to do it.”
		“Ap's have been doing an autism audit”
		“don't seem to be a great deal of models out there for things that might occur for people with autism”
		“might be useful just to kind of have a yeah, framework when you're formulating; Have you thought about these kind of things we might not need that, but just sometimes if you're forgetting. As you said, you're person centred but also there, you can only be follow what they tell you. So you do need to ask about certain things as well and notice certain things to sort of bring those up.”
		“what models can we draw upon and can we create a resource for that? What's already out there and what doesn't exist, that perhaps we're trying to fill in the blanks for?”
		“I don't think you need a formulation of the autism , you need to think about how it's impacting. So if you've like got a Garrety formulation for psychosis or a Morrison one, you need to say each bit how the the autism sort of impacts”

Theme	Sub theme	Example Quotes
Practice	Moving from awareness to action	“you can have lots of training. It's about keeping it live”
		“everything about just keeping things in mind and and how to do that on an ongoing basis”
		“just keeping things alive, keeping up with things. I think you mentioned like the the language use”
		“And it keeps it live”
		“sort of embedded in your daily sort of weekly ole”
		“and how to do that on an ongoing basis”
		“I mean I understand that we obviously need to be aware and make reasonable adjustments for people with autism”
		“awareness is the key or a starting point”
		“We're aware that there's an increase of autism”
		“So I think generally there's more of an awareness.”
		“it's the time thing, I guess, isn't it? And having enough information and preparation before”
	Champions	“They might arrange for somebody to come and speak to the team or give some feedback on latest things that are going on. They circulate materials and in the team, somebody that you could just, you know, ask a question if you had it. They wouldn't officially do supervision with people about Autism. But they're they're a good resource because they're the ones that link with the autism Adjustment service and try to keep an eye on things.”
		“[EDI meetings] Neurodiversity comes up every time, and we account for it, but there's never been an action for it as such”

Theme	Sub theme	Example Quotes
		“we've got autism champions. We link in with the adjustment service”
		“within the teams EDI sort of group as well, we do try and account for neurodiversity and kind of think about as a whole team what kind of changes do we need to do or we need to consider. But I think there's often never enough time to give to each specific aspect of EDI and things are always quite rushed there. So I think yeah, if we can give it some space for it, it will be really good for all kinds of EDI aspects including. Neurodiversity.
		I don't think we haven't. We have done justice for that just yet”
		“I think keeping up with documents and sharing those amongst us, so that. I find these things helpful because you've also got things to refer back to when you start working with the client”
		“sharing information”
		“there's quite a few people now, producing webinars and things about adapting it because it's been recognised that, you know, just following the standard model isn't going to be suitable for many. Not all of them, people with autism, autistic people”
		“we haven't [got champions] in Oxfordshire, we haven't actually we have in the past I think, but I think it's something we need to initiate again and setting things up”
	Resources	“we've got very broad in our psychological therapies document we've got Pathways about how somebody would get referred for an assessment for autism if they haven't been diagnosed and also, it goes down to adapt the CBT but it doesn't go into detail about how you adapt it.”

Theme	Sub theme	Example Quotes
		"Many Aps have done presentations to the team on autism and then slides and resources have been available on teams for reference."
		"that's the key, isn't it, that services are allowed to practise perhaps the way they would want to align more time, shorter sessions, out and about, you know, I know we are allowed to do that in EI, but actually more generally, perhaps not. So yeah, the model itself, it's accepted that we are allowed to adapt it because at the end of the day, we're a lucrative resource. We're finite"
		"[] did a PowerPoint presentation as well and one of our CPD slots about Neuro Diversity, which we should have in our resources"
		"So we're talking about the flexibility that we love in EI."
		"A lack of community resource is a barrier to working effectively with people with autism and then it's any, like, really good permanent funding. And now I'm just really not sure what community resource available, but I think that would, you know, I suppose it's about feeling more confident working with autism. You know, it would definitely helped my confidence if I knew there were good things available in the community, for example."
		"it'd be good to like have a list of resources, because, for example, that bed thing, I don't know that one, you know, somebody else might not know about pressure bus. We need to have a list of the sorts of things that might be helpful for people to try and then best case scenario would be for us to have these things for people to try out."
		"trying to really work on adapting some sort of worksheets that would be ASD friendly or ways of using CBT principles like homework, et cetera…. I

Theme	Sub theme	Example Quotes
		have to outsource those sort of things through either charities or other other areas. That isn't sort of readily available to to sort of go and and use that.”
		“I feel like that is that could be an outcome. You know that we've pull our knowledge, resources, things like this and sort of pull it into a little SOP which is like, you know when meeting somebody you know consider you know might they have autism, you know, and what sort of things you do at that stage? And then if you know they have, you know, the beginning of therapy, these are the sort of things. We've definitely got all this information. It just requires somebody willing and able to put it into a format and then for us to adopt it and embed it in our psychological therapies document”
		“we can be aware of all these kind of sensory needs and then quiet environments and all the rest of it. But actually what have we got that we can use for that so.”
		“[barrier to Ras] the space that we use to to deliver therapy.”
		“It's a lot of echoing in our clinical rooms than the corridor here. So we have we send out emails and somebody has got therapy or carefully to work with somebody sensitive to say please keep the door, keep it as quiet as you can, just e-mail us beforehand. But are they always read?”
		“accommodations but with room to sort of stretch into things that might feel challenging”
Clinical complexity	Confidence, complexity, and risk	“I think there's a lot to hold in mind, and I definitely my confidence drops then. I think that is harder and it definitely seems on the increase.”

Theme	Sub theme	Example Quotes
		“Not, you know, not otherwise explained by something else. But it's it just becomes so complex and tricky to to tease out as a professional and just… like we'd aspire to ask people's preferences regardless, but definitely I'd be more sort of ready, sort of like with my bag of sensory things if I knew the person had autism, Whether we ask everybody where they would prefer to be seen, we ask everybody about the modality, because we have options for that. So I think there's some things that are built in. “ “that adds complexity to assessment, you know to team assessments and decisions about what the primary difficulties are? potential barrier is I don't, feels to me over the years of working it was getting like more and more complexity and Sort of specific sort of things that require some specific understanding. The people being sort of more idiosyncratic, you know that in their preferences and you know, sensory difficulty etcetera, that already is quite complex. But you'll get autism plus something else” “it's overwhelming holding everything in mind” “we should be person centred. It's just as a you can't, there are other things you have to bear in mind. You can't just go on what the person's bringing. You've got to be sort of more aware and observant than that.” “I think about the intersectionality there. Yeah, and where it might be kind of overlooked in some groups compared with others” “So that risk really is high end”
	Meeting service user needs	“if you're not thinking about that or not knowing [if someone has autism], you might get frustrated or you might get stuck like you and your formulation

Theme	Sub theme	Example Quotes
		or therapy . So I suppose [it's helpful to think] that there might be something else that that that's going on."
		"Is it a lot then about the process ? … So maybe it's about, but as you say, me being a bit more explicit about and being prepared to, you know and sort of helping so you know make helping the person get the best out of therapy"
		"So it's about scaffolding, then maybe we need to, but which I think we do a. I mean, I mean, I made that mistake all the time, not just with clients are autistic just generally and assuming people will be fine and that, but actually they do need more help than they're saying"
		"a therapeutic relationship that's tricky to kind of bring that [openness] out of someone."
		"we do offer to see people where they feel most comfortable at home or other places in the community GP surgery or, you know, wherever we can get some privacy"
		"the person can't tell you what they're not really fully aware of themselves"
		"help them make those choices"
		"just kind of taking a bit of a zoom out, I suppose to think how I can that perhaps contribute to the work that we're doing with clients for"
		"and that sort of balance between, yes, I want to sort of change this, but actually I don't want to change everything because you know why should I have to fit?"
		"people who aren't diagnosed, and even people who are don't necessarily know what adaptations are helpful for them"

Theme	Sub theme	Example Quotes
	Clinical presentations and symptoms	“diagnostic overshadowing… So there's just all it just it is so tricky to because if you're looking at the criteria for complex PTSD”
		“care coordinaters have screening tools available immediately , but I don't know. I think we're quite good at looking out for suspected autism.”
		“young girls that have been labelled as having EUPD that actually have ASD and the emotional dysregulation is in line with that”
		“diagnostic overshadowing actually”
		“So just the different presentations, I think being aware 'cause, I think we probably know some, but we might miss others, I think, and in different you know men versus women older, younger. I think that would be helpful.”
		“Have a wide variety of presentations, so for some people they really like the structure of it and for some people that's really difficult. But you know, there are some really good things. I think it is accepted. It's going to just take a bit more time.”
		“there's comorbidities, quite likely people with ASD, you know they're more likely to have other things like ADHD for example.
		Dyslexia. All the neuro, you know, diversities. So it may because somebody has autism that may that may not be the only thing there they're struggling with.”
		“everyone with autism, the same as anybody, everyone with an autism diagnosis doesn't have the same needs or present in the same way do they.”
		“males and females present differently, older people, young because they learn, don't they? Along the way, how to mask and behave in different ways”

Appendix H. SIP Recommendations and Guidance Document

Recommendations to improve competency in working therapeutically with autistic people

As a part of her Service Improvement Project for the Clinical Psychology Doctorate at the University of Oxford, the following recommendations were developed by Charlotte Thomas-Carmichael. This project was closely supervised by Dr Louise Johns and Dr Libby Barnardo.

For the recommendations and guidance to be impactful, and embedded within service practice, the service may consider the following:

- Review the current guidelines and recommendations in a team meeting of therapeutic and other clinicians.
- To devise a plan for the future of how the recommendations and guidance will be rolled out, used, stored, and reviewed.
- To prioritise data recording to enable future audits, detailed below.

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Recommendations for the service…… 2

Audit for the service to assess competency in adapting therapy for autistic patients……. 5

Recommendations for the service

- To allocate a professional(s) within the service to act as a neurodiversity Champion/ lead.
    - *To develop role responsibilities for the neurodiversity champion. For the champion to forge relationships with the RA service. Able to be within the wider team, not specifically the psychology team.*
    - *Role responsibilities may include to keep discussions of autism on the agenda across meetings and CPD slots, to circulate up to date research and guidance, to liaise with the reasonable adjustments team, to accumulate questions and areas of need from the team and seek training and/or consultation from RA service.*
    - *Allocate task to:*
        - *Bucks- Two leads embedded in the team already.*
        - *Oxford- To be formalised*

- To form connections with the reasonable adjustment (RA) team, other services and charities to consider options for bespoke training, supervision spaces, or support with individual cases. To prioritise training delivered by autistic people.
    - *Allocate task to: Neurodiversity leads*

- To become familiarised with reasonable adjustment resources on the intranet.
    - *To make use of the variety of resources available, particularly the autism passport (recommended by RA service) to inform professional and patient understanding of autistic profiles, to inform reasonable adjustments.*
    - *Allocate task to: Neurodiversity leads to circulate and keep update. Psychology team to look over resources.*

- Consider how to determine if someone is autistic eg. make use of a screening tool and/or autism passport early in therapy to better understand an individual's presentation and to inform potential adaptations based on the individual's profile.
    - *Allocate task to: Psychology team.*

- To retain a person-centred approach to each individual and to not assume specific characteristics, or profile, based on knowledge of autism alone. To develop a standardised checklist that may be used during assessment that encompasses potential elements of intersectionality to aid memory.
    - *Allocate task to: Psychology leads.*

- To develop, on an ongoing basis, a collaborative CBTp formulation and protocol with annotations of potential suitable adaptations at differing points of the formulation for autistic people.
    - *Allocate task to: Psychology team.*

- Maintain practical resource database with details on resource locations.
    - *To include practical, online, and training resources available to practitioners. To consider space for requests for resources and/or training. To include circulated resources and research.*
    - *Allocate task to: [Name/s] to develop, wider team to contribute to.*
- To create a database to share anecdotes or learning from individual cases from clinicians.

- *To share examples of individual presentations and ideas for adaptations on a shared database that can be continually updated.*
- *To include spaces for questions that can be reviewed in CPD slots, or by the EDI panel or neurodiversity champion. Perhaps using Padlet.*
- *Allocate task to: [Name/s] to set up- wider team to contribute.*

- To meet regularly as a psychology service to reflect and share learning on working therapeutically with diverse patients and intersectionality.
  - *To share and reflect on adaptations and considerations made throughout an individual's pathway through the service to embed learning.*
  - *To regularly reflect on where confidence could continually be improved, as a team, and to discuss options for addressing this ie. Training opportunities or CPD slots.*
  - *Allocate task to: EDI leads- ongoing.*

- To make use of measures such as the Therapist Confidence Scale for autism (TCS-ASD) for personal reflection or use in supervision.
  - *To reflect individually on aims for confidence and to compare to current ratings. To consider more broadly what confidence means individually and to choose specific areas of focus.*
  - *Allocate task to: whole psychology team*

- To use existing spaces in different ways to embed and develop learning to increase competence.

- *To consider using spaces for discussing new research, guidance, and recommendations, for reflecting on cases, for self-reflection, for specific skill growth (CPD/ training), and for wider management reflections on pathways through services and considering capacity for other projects and needs ie. audits.*
- *Allocate task to: Neurodiversity leads*

- Creating a rolling agenda item to address clinical competency.
  - *For this to be applied to a variety of meetings and spaces from individual/supervisory to service wide meetings to ensure continued conversation.*
  - *To consider a system for more widely reflecting and checking in on projects and previous project outcomes and progress, perhaps 6 monthly or annually.*
  - *Allocate task to: [Name/s] to think about this within psychology team.*

- Seek additional funding pots that could be used to fund practical resources such as sensory gadgets.
  - *Allocate task to: Leads/ team managers.*

- Record autism diagnosis, or suspected autism on psychological referral and intervention spreadsheets.
  - *To support future audits and to further understand therapeutic outcomes of autistic people within the EIP.*
  - *Allocate task to: [Name/s].*

Audit for the service to assess competency in adapting therapy for autistic patients

The service should regularly assess whether they see improvements in autism competency (for example, every year). The service may use the below checklist to guide their autism competency assessment:

Indicators of autism competency	**Next steps**	**Task allocated to**	**Planned completion date**
Allocate a professional(s) within the services to act as a neurodiversity Champion/ lead.		Bucks- embedded Oxford- to discuss	
Form connections with the reasonable adjustment (RA) team, other services and charities to consider options for bespoke training, supervision spaces, or support with individual cases.		Neurodiversity leads	
To become familiarised with reasonable adjustment resources on the intranet.		Neurodiversity leads and wider psychology team.	
Consider how to determine if someone is autistic.		Psychology team (in progress).	

To develop a standardised checklist that may be used during assessment that encompasses potential elements of intersectionality to aid memory.		[Name/s]. Contributions from wider team.	
To develop, on an ongoing basis, a collaborative CBTp formulation and protocol		Psychology team	
Maintain practical resource database with details on resource locations		[Name/s]. Contributions from wider team.	
To create a database to share anecdotes or learning from individual cases from clinicians.		[Name/s]. Wider psychology team to contribute.	
To meet regularly as a psychology service to reflect and share learning on working therapeutically with diverse patients and intersectionality.		Wider psychology team.	Embedded
To make use of measures such as the Therapist Confidence Scale for autism (TCS-ASD) for personal reflection or use in supervision		Wider psychology team.	

To use existing spaces in different ways to embed and develop learning to increase competence.		Neurodiversity leads.	
Creating a rolling agenda item to address clinical competency		Neurodiversity leads.	
Seek additional funding pots that could be used to fund practical resources such as sensory gadgets.		Team leads/ managers.	
Record autism diagnosis, or suspected autism on psychological referral and intervention spreadsheets.		[Name/s].	

Appendix I. SIP Lay Summary

In Oxfordshire and Buckinghamshire early intervention in psychosis services (EIS), a recent exploration found that up to one third of patients were autistic or suspected to be autistic. It is known that autistic people benefit most from evidence-based therapeutic interventions, like cognitive behavioural therapy for psychosis (CBTp), when they are adapted to different needs of an autistic person. There are lots of factors that impact on the effectiveness of interventions like CBTp, for autistic people, and one factor is how confident the therapist is in providing adapted therapy. Given that the EIS had identified a large proportion of their caseload could be autistic, this project aimed to improve the care given to these patients, by understanding and improving the confidence of clinicians.

To do this, therapists within the team completed surveys and participated in focus groups. These focus groups were then analysed using a technique called thematic analysis, which allows the content of the groups to be broken down into themes. These themes were then used to understand therapists' experiences, and to create recommendations to improve therapist confidence in providing therapy adapted for autistic patients.

The surveys found that across experience levels, thought therapists were confident in providing some aspects of therapeutic work with autistic patients, like building rapport, other areas had room for improvement. The surveys also informed the focus group questions. During the focus groups, three key themes relevant to therapist confidence were found during the analysis: learning, practice, and clinical complexity. Therapists talked about the importance of learning from each other, research and experts to support their confidence. Therapists also talked about the importance of practicing what they had learned, and having access to therapeutic and environmental resources. Finally, therapists spoke about the theme of clinical complexity, where things like diagnostic overshadowing, and risk were talked about in relation to confidence.

These finding then led to the development of a range of recommendations to support confidence in the service moving forward. Recommendations included things like establishing roles of autism champions in the team, sharing resources that exist, allocating roles to seek small pots of funding for additional resources, and creating shared spaces to reflect on clinical complexity. The team embedded these recommendations into their practice.

Appendix J. TDRP Journal Guidelines

Psychosis: Psychological, Social and Integrative Approaches

Instructions for authors
Thank you for choosing to submit your paper to us. These instructions will ensure we have everything required so your paper can move through peer review, production and publication smoothly. Please take the time to read and follow them as closely as possible, as doing so will ensure your paper matches the journal's requirements.
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Updated 25-11-2024

Appendix K: TDRP Ethical Approval (IRAS/HRA)

Lothian NHS Board

South East Scotland Research Ethics Committee 01

2nd Floor, Waverley Gate
2-4 Waterloo Place
Edinburgh
EH1 3EG
www.hra.nhs.uk

Enquiries to: Sandra Wyllie
Email: Sandra.Wyllie@nhs.scot

Please note: This is the favourable opinion of the REC only and does not allow you to start your study at NHS sites in England until you receive HRA Approval

17 June 2024

Miss Amy Lewins
Trainee Clinical Psychologist
Oxford Health NHS Foundation Trust and University of Oxford Isis Education Centre
Warneford Hospital
Oxford
OX3 7JX

Dear Miss Lewins

Study title:	**Understanding the Impact of Traumatic Experiences Throughout the Lifespan and Feelings of External Shame on the Experience of Hearing Voices.**
REC reference:	**24/SS/0048**
Protocol number:	**17740**
IRAS project ID:	**334076**

Thank you for your letter of 10 June 2024, responding to the Research Ethics Committee's (REC) request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

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

Good practice principles and responsibilities

The UK Policy Framework for Health and Social Care Research sets out principles of good practice in the management and conduct of health and social care research. It also outlines the responsibilities of individuals and organisations, including those related to the four elements of research transparency:

1. registering research studies
2. reporting results
3. informing participants
4. sharing study data and tissue

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Miss Amy Lewins
Trainee Clinical Psychologist
Oxford Health NHS Foundation Trust
Oxford Health NHS Foundation Trust and University of Oxford Isis Education Centre
Warneford Hospital
Oxford
OX3 7JXN/A

Email: approvals@hra.nhs.uk
HCRW.approvals@wales.nhs.uk

25 June 2024

Dear Miss Lewins

HRA and Health and Care Research Wales (HCRW) Approval Letter

Study title:	**Understanding the Impact of Traumatic Experiences Throughout the Lifespan and Feelings of External Shame on the Experience of Hearing Voices.**
IRAS project ID:	**334076**
Protocol number:	**17740**
REC reference:	**24/SS/0048**
Sponsor	**Research and Development Department, Oxford Health NHS Foundation Trust**

I am pleased to confirm that **HRA and Health and Care Research Wales (HCRW) Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

Please now work with participating NHS organisations to confirm capacity and capability, in line with the instructions provided in the "Information to support study set up" section towards the end of this letter.

How should I work with participating NHS/HSC organisations in Northern Ireland and Scotland?
HRA and HCRW Approval does not apply to NHS/HSC organisations within Northern Ireland and Scotland.

If you indicated in your IRAS form that you do have participating organisations in either of these devolved administrations, the final document set and the study wide governance report (including this letter) have been sent to the coordinating centre of each participating nation. The relevant national coordinating function/s will contact you as appropriate.

Please see IRAS Help for information on working with NHS/HSC organisations in Northern Ireland and Scotland.

How should I work with participating non-NHS organisations?
HRA and HCRW Approval does not apply to non-NHS organisations. You should work with your non-NHS organisations to obtain local agreement in accordance with their procedures.

What are my notification responsibilities during the study?

The standard conditions document "*After Ethical Review – guidance for sponsors and investigators*", issued with your REC favourable opinion, gives detailed guidance on reporting expectations for studies, including:

- Registration of research
- Notifying amendments
- Notifying the end of the study

The HRA website also provides guidance on these topics, and is updated in the light of changes in reporting expectations or procedures.

Who should I contact for further information?
Please do not hesitate to contact me for assistance with this application. My contact details are below.

Your IRAS project ID is **334076**. Please quote this on all correspondence.

Yours sincerely,
Carolyn Halliwell

Approvals Specialist

Email: approvals@hra.nhs.uk

Copy to: *Ms Natalia Jastrzebska*

Appendix L. TDRP: Study Poster



Appendix M. TRDP: Patient Information Sheet and Consent Form

Understanding the Impact of Traumatic Experiences Throughout the Lifespan and Feelings of External Shame on the Experience of Hearing Voices

Online Participant Information Sheet

Our names are Amy Lewins and Charlotte Thomas-Carmichael and we are Trainee Clinical Psychologists at the University of Oxford. This is an invitation to take part in an online research project which aims to further understanding about the experience of hearing voices.

Before you decide whether you would like to take part in the project, it is important for you to understand why we are interested in your experience and what will be involved for you. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information by contacting us by email at the address included at the end of this sheet. You can take as much time as you need to consider participating in the study and you are able to click back on the link/QR code at a later time if you wish to think it over in your own time.

Why are we conducting this research?

The experience of hearing voices which others cannot is common in both people with mental health difficulties, as well as in the general population. For some, this experience can be distressing and frightening. We are hoping to understand a little more about experiences that may be associated with people developing voice-hearing and what factors influence the types of voices people hear, for example whether they hear a kind, compassionate voice or an authoritative, scary voice.

When we talk about hearing voices, we mean hearing anything that others around you aren't hearing. Hearing voices includes a range of auditory experiences, such as hearing clear voices of oneself or others, or indistinct sounds, urges, and voices such as knocking, compulsions, or single words. To some these voices can be comforting or inspirational, to some they can be neutral and in the background, and to others these experiences can be distressing, confusing, threatening, or critical.

We are hoping that people who have experienced hearing a voice, or multiple voices, will answer some online questionnaires about themselves and their personal experience of hearing voices. We hope that by getting a better understanding of the experience of hearing voices, we can suggest some changes that mental health services can make to the support they provide for people who are distressed by voices they hear.

Why have I been invited to take part?

You have been invited to take part as you have self-identified as someone who has experienced hearing a voice or multiple voices. Alternatively, your clinician may have referred you to the study because they understand that you have experience of hearing a voice or multiple voices.

Do I have to take part?

No. Participating in the study is completely voluntary. If you decide to take part, you can also change your mind at any point while completing the online study. During the study, you will complete up to two sections, following the first section of the study you will be asked whether you would like to continue to the second part (approximately 5 minutes), whether you would like to stop and include your data in the study, or if you have changed your mind and would like to withdraw. At the end of both parts of the study, you will again be offered the option to include your data in the study, or to change your mind, and opt out of the study. If at either point you opt to withdraw from the study, we will delete any data you have provided and will ensure that your responses are removed entirely from our files. If you decide not to take part, you do not need to give a reason for this and there will be no negative consequences for you. There will be no impact on any mental health support you are receiving. If you change your mind after completion of the study and agreeing to be included, please contact the research team using the details entered into the survey. We can then use these details to find your unique study ID code, and remove your data from the study. After the results have been collected and processed, you will be unable to withdraw your data from the study.

What will happen if I decide to take part?

If you would like to be involved, you will be asked to indicate your consent on the next page.

You will then be asked to answer a series of online questionnaires about you and your experience of hearing voices, including what the voice(s) sound like, or used to sound like, and what they say or said. We will then ask you a bit about yourself, including a little about your current mental health and wellbeing. You will then be allocated to section 1 of the study, should you choose to continue you will additionally complete section 2. Both sections will usually take under 5 minutes to complete. In total there are nine questionnaires.

Your NHS records will not be accessed by the research team for the purposes of this research.

What are the benefits and risks of taking part?

Some questionnaires ask about your past life experiences, including some questions about difficult past experiences. You may find some of the questions difficult to answer or upsetting. We encourage you to only answer what you feel able to and if you feel distressed or upset at the end of the questionnaires, you can use the contact details provided at the end of the study for some emotional support.

The findings of this study will be used to better understand voice-hearing development and content, which will hopefully improve identification and intervention. Whilst this does not provide immediate benefit for the research participants in this study, it may benefit their treatment and that of others in future.

How will we use information about you?

We will need to use information from you for this research project.

This information will include your:

- Name
- Date of birth
- Email address

People will use this information to do the research or to check your records to make sure that the research is being done properly.

People who do not need to know who you are will not be able to see your name or contact details. Your data will have a code number instead.

Once we have finished the study, we will keep some of the data so we can check the results. We will write our reports in a way that no-one can work out that you took part in the study.

Consent will be stored for up to three years with OHFT. If you wish to receive a summary of research, your email address will be retained for this purpose and will be destroyed after the summary is shared. If, when asked, you indicate that you do not wish to receive a summary of the research, your email address will be destroyed from our files immediately.

Before the main questionnaires, you will be asked to complete a brief questionnaire containing some questions about you, such as your age, gender identity and ethnicity. Only the research team will have access to this data, and it will be used to check whether all people are represented in our sample. All data will be stored on a password protected NHS Trust device and deleted after three years.

How will information about you be stored?

Data will be managed in adherence with Oxford Health NHS Foundation Trust (OHFT) Privacy Policy. All personal information that could identify you, such as your name or email address, will be separated from your answers on the questionnaires, these will be saved in a password protected document stored on an OHFT laptop. Data from the answers you provide on the questionnaires will be analysed at the University of Oxford, in adherence with the University of Oxford Privacy Policy.

What are your choices about how your information is used?

You can stop being part of the study at any time, without giving a reason, but we will keep information about you that we already have.

We need to manage your records in specific ways for the research to be reliable. This means that we won't be able to let you see or change the data we hold about you.

Where can you find out more about how your information is used?

You can find out more about how we use your information

- at www.hra.nhs.uk/information-about-patients/
- our leaflet available from https://www.oxfordhealth.nhs.uk/privacy/
- by asking or contacting one of the research team:

amy.lewins@stx.ox.ac.uk

charlotte.thomas-carmichael@worc.ox.ac.uk

- by sending an email to Oxford Health Data Protection Officer at mark.underwood@oxfordhealth.nhs.uk

Will the feedback be published? Could I be identified in any publications?

We intend to report our findings in an academic journal and present them at relevant research conferences. The findings will contribute to Amy Lewins's and Charlotte Thomas-Carmichael's Doctorate in Clinical Psychology theses. No identifiable data will be collected, and therefore you will not be identified in any publications.

Who has reviewed this project?

The project has been reviewed and approved by the xxx Research Ethics Committee (Ref *24/SS/0048*) and the Health Research Authority (IRAS reference number: 334076). The project was approved on 25/06/2024. The project is being sponsored by Oxford Health NHS Foundation Trust. The Information Governance team within Oxford Health NHS Foundation Trust have conducted a Data Protection Impact Assessment for the project.

What if there is a problem?

If you experience any difficulties while completing the online study, please contact either Amy Lewins or Charlotte Thomas-Carmichael on the contact details listed below. We will acknowledge your concern and give you an indication of how it will be dealt with. If you remain unhappy or wish to make a formal complaint, please contact our supervisors:

Professor Craig Steel: craig.steel@hmc.ox.ac.uk

If you wish to speak to an independent body about any concerns or complaints about any aspect of the way you have been approached or treated during this study, you can do this through the Patient Advice and Liaison Service (PALS). PALS, Oxford Health NHS Foundation Trust, PALS Office, Warneford Hospital, Warneford Lane, Oxford OX3 7JX. Tel: 0800 3287971. E-mail: PALS@oxfordhealth.nhs.uk

Further Information and Contact Details for the Duration of the Study



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Oxford Institute for Clinical Psychology Training and Research

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Charlotte Thomas-Carmichael - Trainee Clinical Psychologist
Oxford Institute for Clinical Psychology Training and Research

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Warneford Hospital

Headington, Oxford

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Thank you for taking the time to read this information sheet.

Information Sheet 24.06.2024 Version 1.7

IRAS: 334076; REC Ref. 24/SS/0048

Understanding the Impact of Traumatic Experiences Throughout the Lifespan and Feelings of External Shame on the Experience of Hearing Voices

Online Participant Consent Form

This study aims to survey people who hear voices about the emotions they commonly experience, such as shame, as well as events that have happened in their life, such as traumatic incidents. We hope that this project will help us to better understand the experience of hearing voices, including what might lead to the onset of voice hearing as well as what the experience of hearing voices feels like. We hope to share our findings with psychological services and to suggest changes services can make to better support people who hear voices.

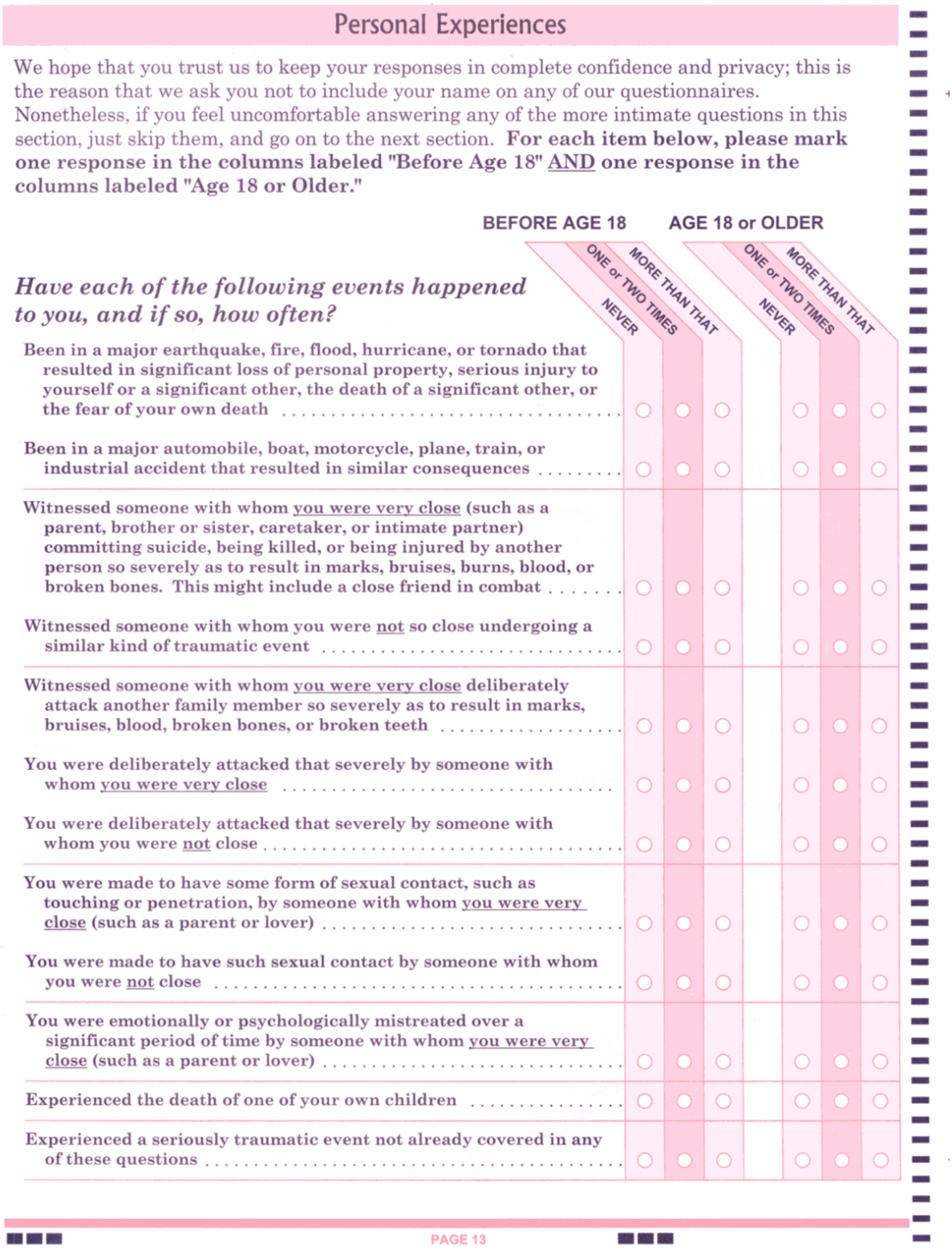
		Please click each box if you agree
1	I confirm that I have read and understand the information sheet dated 24.06.2024 (version 1.7) for the above study. I have had the opportunity to consider the information carefully, ask questions and have had these questions answered satisfactorily.	☐
2	I understand that my participation is voluntary and that I am free to withdraw at any point without giving any reason until I have submitted my responses, without my medical care or legal rights being affected.	☐
3	I understand that relevant sections of the data collected during the study, may be looked at by individuals from regulatory authorities or from the Oxford Health 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.	☐

4	I understand that the information I provide as part of this study will be kept confidential and only the research team will have access to it.	☐
5	I understand that the research team will hold my personal details (e.g. name, email address) for the duration of the study, in order to contact me for research purposes, and that following completion of the study, this information will be destroyed.	☐
6	I understand that I will not be identifiable from any publications, reports or presentations that are made using the results from the study, including my answers to the online questionnaires.	☐
7	I would like to receive a summary of the study results	☐
8	I agree to take part in the study.	☐

Name of Participant Date Signature

Email address:

Appendix N. TDRP: Brief Betrayal Trauma Survey (BBTS)



Personal Experiences

We hope that you trust us to keep your responses in complete confidence and privacy; this is the reason that we ask you not to include your name on any of our questionnaires. Nonetheless, if you feel uncomfortable answering any of the more intimate questions in this section, just skip them, and go on to the next section. **For each item below, please mark one response in the columns labeled "Before Age 18" AND one response in the columns labeled "Age 18 or Older."**

Have each of the following events happened to you, and if so, how often?	BEFORE AGE 18			AGE 18 or OLDER		
	NEVER	ONE or TWO TIMES	MORE THAN THAT	NEVER	ONE or TWO TIMES	MORE THAN THAT
Been in a major earthquake, fire, flood, hurricane, or tornado that resulted in significant loss of personal property, serious injury to yourself or a significant other, the death of a significant other, or the fear of your own death	○	○	○	○	○	○
Been in a major automobile, boat, motorcycle, plane, train, or industrial accident that resulted in similar consequences	○	○	○	○	○	○
Witnessed someone with whom you were very close (such as a parent, brother or sister, caretaker, or intimate partner) committing suicide, being killed, or being injured by another person so severely as to result in marks, bruises, burns, blood, or broken bones. This might include a close friend in combat	○	○	○	○	○	○
Witnessed someone with whom you were not so close undergoing a similar kind of traumatic event	○	○	○	○	○	○
Witnessed someone with whom you were very close deliberately attack another family member so severely as to result in marks, bruises, blood, broken bones, or broken teeth	○	○	○	○	○	○
You were deliberately attacked that severely by someone with whom you were very close	○	○	○	○	○	○
You were deliberately attacked that severely by someone with whom you were not close	○	○	○	○	○	○
You were made to have some form of sexual contact, such as touching or penetration, by someone with whom you were very close (such as a parent or lover)	○	○	○	○	○	○
You were made to have such sexual contact by someone with whom you were not close	○	○	○	○	○	○
You were emotionally or psychologically mistreated over a significant period of time by someone with whom you were very close (such as a parent or lover)	○	○	○	○	○	○
Experienced the death of one of your own children	○	○	○	○	○	○
Experienced a seriously traumatic event not already covered in any of these questions	○	○	○	○	○	○

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Appendix O. TDRP: Brief Dissociative Experiences Scale (DES-B)

Severity of Dissociative Symptoms—Adult*

*Brief Dissociative Experiences Scale (DES-B)—Modified

Name:_____ **Age:** _____ **Sex: Male** ❑ **Female** ❑ **Date:**_____

Instructions: For each statement below, please check (✓) the box that best answers each question to show how much each thing has happened to you in the past SEVEN (7) DAYS.

							Clinician Use
		Not at all	Once or twice	Almost every day	About once a day	More than once a day	Item score
1.	I find myself staring into space and thinking of nothing.	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
2.	People, objects, or the world around me seem strange or unreal.	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
3.	I find that I did things that I do not remember doing.	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
4.	When I am alone, I talk out loud to myself.	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
5.	I feel as though I were looking at the world through a fog so that people and things seem far away or unclear.	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
6.	I am able to ignore pain.	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
7.	I act so differently from one situation to another that it is almost as if I were two different people.	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
8.	I can do things very easily that would usually be hard for me.	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
						Total/Partial Raw Score:	
						Prorated Total Raw Score: (if 1-2 items left unanswered)	
						Average Total Score:	

DES-B (Dalenberg C, Carlson E, 2010) modified for DSM-5 by C. Dalenberg and E. Carlson.

This measure is based on measures produced using U.S. federal government resources and is therefore in the public domain and freely available for use without permission so long as authorship is accurately attributed.

Appendix P. TDRP: Patient Health Questionnaire (PHQ-8) & Generalised Anxiety Disorder (GAD-7) Questionnaires

Patient Health Questionnaire –8 (PHQ-8)

Name:_____

Date of Birth: _____ Today's Date:_____

Over the last 2 weeks, how often have you been bothered by any of the following problems?		Not at all	Several days	More than half the days	Nearly every day
1.	Little interest or pleasure in doing things	☐	☐	☐	☐
2.	Feeling down, depressed, irritable or hopeless	☐	☐	☐	☐
3.	Trouble falling or staying asleep, or sleeping too much	☐	☐	☐	☐
4.	Feeling tired or having little energy	☐	☐	☐	☐
5.	Poor appetite or overeating	☐	☐	☐	☐
6.	Feeling bad about yourself – or that you are a failure or have let yourself or your family down	☐	☐	☐	☐
7.	Trouble concentrating on things, such as school work, reading or watching television	☐	☐	☐	☐
8.	Moving or speaking so slowly that other people could have noticed? Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual	☐	☐	☐	☐

GAD-7 Anxiety

Over the last two weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid, as if something awful might happen	0	1	2	3

Column totals _____ + _____ + _____ + _____ =

Total score _____

If you checked any problems, how difficult have they made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
☐	☐	☐	☐

Source: Primary Care Evaluation of Mental Disorders Patient Health Questionnaire (PRIME-MD-PHQ). The PHQ was developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke, and colleagues. For research information, contact Dr. Spitzer at ris8@columbia.edu. PRIME-MD® is a trademark of Pfizer Inc. Copyright© 1999 Pfizer Inc. All rights reserved. Reproduced with permission

Scoring GAD-7 Anxiety Severity

This is calculated by assigning scores of 0, 1, 2, and 3 to the response categories, respectively, of "not at all," "several days," "more than half the days," and "nearly every day."
GAD-7 total score for the seven items ranges from 0 to 21.

0–4: minimal anxiety

5–9: mild anxiety

10–14: moderate anxiety

15–21: severe anxiety

Appendix Q. TDRP: Voice Hearing Questions

Voice-Hearing Frequency and Distress:

Voice frequency. How often do you hear voices?

- Never experienced hearing voices
- Voices not currently present or present less that once a week
- Voices occur once a week
- Voices occur at least once a day
- Voices occur at least once an hour
- Voices occur continually ie. only stop for a few seconds or minutes

If you are not currently experiencing voices, when was the last time you experienced hearing voices?

- Less than 1 month ago
- Less than 3 months ago
- Less than 6 months ago
- Less than 12 months ago
- Over 12 months ago

Voice distress. Are your voices distressing? How much of the time?

- Voices not distressing at all
- Voices occasionally distressing, majority not distressing
- Equal amounts of distressing and non-distressing voices
- Majority of voices distressing, minority not distressing
- Voices always distressing

Age of onset

Age. How old are you?

Voice hearing age. How old were you when you first heard voices?

Age of experiences. Did you first experience trauma(s) before or after you started to hear voices?

- Trauma before voice-hearing
- Trauma after voice-hearing
- Trauma experienced both before and after voice-hearing
- No traumatic experiences
- Prefer to self describe

Appendix R. TDRP: Demographic Questionnaire

Are you over 18 years of age?

- Yes
- No

Q31. Are you a UK resident?

- Yes
- No

Demographic Questions

Uk Ethnic Origin. What best describes your ethnic origin?

- White
- Black/African/Caribbean
- Asian (Indian, Pakistani, Bangladeshi, Chines, any other Asian background)
- Mixed two or more ethnic groups (please describe)
- Other (please describe)
- Prefer to self-describe
- Prefer not to say

Gender. How do you describe yourself?

- Male
- Female
- Non-binary / third gender
- Prefer to self-describe
- Prefer not to say

Education. What is the highest level of education you have achieved?

- Primary School or Lower
- Secondary School (i.e. GCSEs or equivalent)
- College or Sixth Form (i.e. A-Levels of equivalent)
- University (i.e. Undergraduate Degree)

- Post Graduate University (i.e. master's degree, PhD)
- Prefer not to say

Appendix S. TDRP: Signposting information

Who You Can Contact for Support

We understand that some people might have found completing this survey difficult.

If you have found it difficult to complete this survey and you need support, these are some people that you can call:

· If you are open to a mental health team, you can call your care coordinator (in office hours)

Your GP (in office hours

· NHS 111

· Samaritans 116 123

· If you need immediate urgent support, you can call 999 or visit your local A&E department.

The following websites also offer a range of support and information:

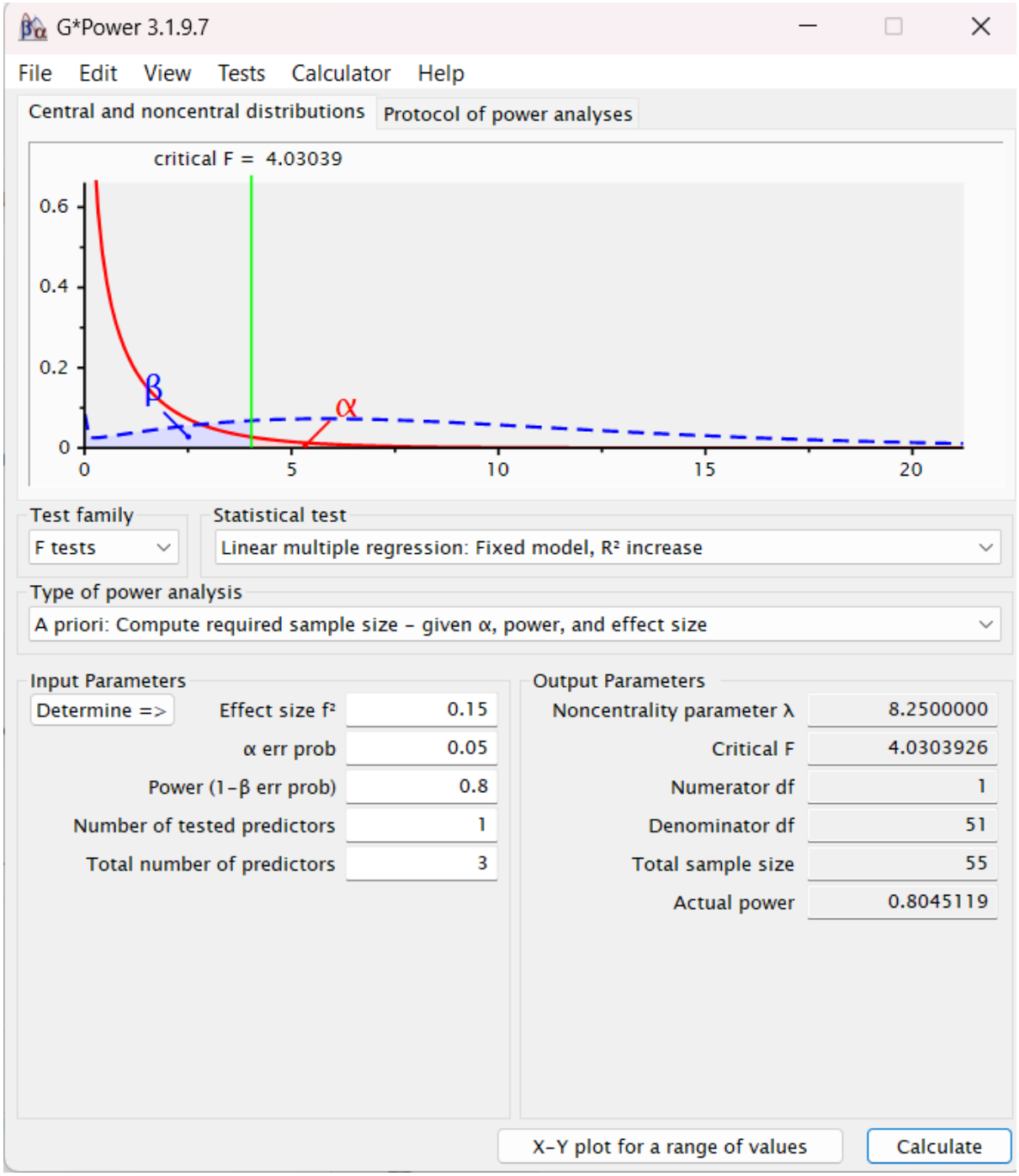
- https://www.hearing-voices.org
- https://www.bipolaruk.org
- https://www.sane.org.uk/how-we-help/emotional-support/saneline-services

A Final Thank You

Thank you for taking the time to complete this survey and to help us to understand more about this topic.

If you have any further questions about this research, please email amy.lewins@stx.ox.ac.uk and/or charlotte.thomas-carmichael@worc.ox.ac.uk.

Appendix T. TDRP: G* Power Analysis



Appendix U. TDRP: Data Analysis Output

H1 output:

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.324[a]	.105	.071	2.039	.105	3.048	2	52	.056	
2	.335[b]	.112	.060	2.051	.007	.404	1	51	.528	
3	.396[c]	.157	.090	2.018	.045	2.674	1	50	.108	1.886

a. Predictors: (Constant), PHQ8_TOTAL, GAD_Total

b. Predictors: (Constant), PHQ8_TOTAL, GAD_Total, Total interpersonal

c. Predictors: (Constant), PHQ8_TOTAL, GAD_Total, Total interpersonal, BBTS interpersonal

d. Dependent Variable: Voice freq and distress

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.357	2	12.678	3.048	.056[b]
	Residual	216.280	52	4.159		
	Total	241.636	54			
2	Regression	27.058	3	9.019	2.144	.106[c]
	Residual	214.578	51	4.207		
	Total	241.636	54			
3	Regression	37.953	4	9.488	2.329	.069[d]
	Residual	203.684	50	4.074		
	Total	241.636	54			

a. Dependent Variable: Voice freq and distress

b. Predictors: (Constant), PHQ8_TOTAL, GAD_Total

c. Predictors: (Constant), PHQ8_TOTAL, GAD_Total, Total interpersonal

d. Predictors: (Constant), PHQ8_TOTAL, GAD_Total, Total interpersonal, BBTS interpersonal

H2 output:

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.324[a]	.105	.071	2.039	.105	3.048	2	52	.056	
2	.395[b]	.156	.107	1.999	.051	3.111	1	51	.084	
3	.396[c]	.157	.090	2.018	.001	.040	1	50	.843	1.886

a. Predictors: (Constant), GAD_Total, PHQ8_TOTAL

b. Predictors: (Constant), GAD_Total, PHQ8_TOTAL, BBTS interpersonal

c. Predictors: (Constant), GAD_Total, PHQ8_TOTAL, BBTS interpersonal, Total interpersonal

d. Dependent Variable: Voice freq and distress

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.357	2	12.678	3.048	.056[b]
	Residual	216.280	52	4.159		
	Total	241.636	54			
2	Regression	37.792	3	12.597	3.152	.033[c]
	Residual	203.845	51	3.997		
	Total	241.636	54			
3	Regression	37.953	4	9.488	2.329	.069[d]
	Residual	203.684	50	4.074		
	Total	241.636	54			

a. Dependent Variable: Voice freq and distress

b. Predictors: (Constant), GAD_Total, PHQ8_TOTAL

c. Predictors: (Constant), GAD_Total, PHQ8_TOTAL, BBTS interpersonal

d. Predictors: (Constant), GAD_Total, PHQ8_TOTAL, BBTS interpersonal, Total interpersonal

H3a output:

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.627[a]	.394	.370	6.340	.394	16.879	2	52	<.001	
2	.706[b]	.499	.469	5.821	.105	10.687	1	51	.002	2.418

a. Predictors: (Constant), GAD_Total, PHQ8_TOTAL

b. Predictors: (Constant), GAD_Total, PHQ8_TOTAL, BBTS interpersonal

c. Dependent Variable: TOTAL

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1356.810	2	678.405	16.879	<.001[b]
	Residual	2089.990	52	40.192		
	Total	3446.800	54			
2	Regression	1718.896	3	572.965	16.911	<.001[c]
	Residual	1727.904	51	33.880		
	Total	3446.800	54			

a. Dependent Variable: TOTAL

b. Predictors: (Constant), GAD_Total, PHQ8_TOTAL

c. Predictors: (Constant), GAD_Total, PHQ8_TOTAL, BBTS interpersonal

H3b output:

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.627[a]	.394	.370	6.340	.394	16.879	2	52	<.001	
2	.632[b]	.400	.364	6.370	.006	.501	1	51	.482	2.373

a. Predictors: (Constant), GAD_Total, PHQ8_TOTAL

b. Predictors: (Constant), GAD_Total, PHQ8_TOTAL, Total interpersonal

c. Dependent Variable: TOTAL

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1356.810	2	678.405	16.879	<.001[b]
	Residual	2089.990	52	40.192		
	Total	3446.800	54			
2	Regression	1377.134	3	459.045	11.312	<.001[c]
	Residual	2069.666	51	40.582		
	Total	3446.800	54			

a. Dependent Variable: TOTAL

b. Predictors: (Constant), GAD_Total, PHQ8_TOTAL

c. Predictors: (Constant), GAD_Total, PHQ8_TOTAL, Total interpersonal

H4a output:

Model Summary

	Columns						
Rows	R	R-sq	MSE	F	df1	df2	p
row1	.2982	.0889	4.2336	2.5379	2.0000	52.0000	.0888

Model

	Columns					
Rows	coeff	se	t	p	LLCI	ULCI
constant	2.4640	.5831	4.2256	.0001	1.2939	3.6341
ChTotInt	.1215	.0950	1.2795	.2064	-.0691	.3121
DESTOT	.0359	.0418	.8580	.3948	-.0480	.1197

********** DIRECT AND INDIRECT EFFECTS OF X ON Y **********

Direct effect of X on Y

	Columns					
Rows	Effect	se	t	p	LLCI	ULCI
row1	.1215	.0950	1.2795	.2064	-.0691	.3121

Indirect effect(s) of X on Y:

	Columns			
Rows	Effect	BootSE	BootLLCI	BootULCI
DESTOT	.0444	.0502	-.0582	.1459

Normal theory test for indirect effect(s):

	Columns			
Rows	Effect	se	Z	p
DESTOT	.0444	.0537	.8265	.4085

H4b output:

OUTCOME VARIABLE:
DESTOT

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2923	.0854	59.4787	4.9501	1.0000	53.0000	.0304

Model

	coeff	se	t	p	LLCI	ULCI
constant	11.5147	1.5931	7.2277	.0000	8.3193	14.7102
AdTotInt	.7940	.3569	2.2249	.0304	.0782	1.5099

****

OUTCOME VARIABLE:
FreqDis

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2480	.0615	4.3610	1.7042	2.0000	52.0000	.1919

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.5729	.6079	4.2326	.0001	1.3531	3.7927
AdTotInt	.0268	.1010	.2653	.7919	-.1760	.2296
DESTOT	.0621	.0372	1.6697	.1010	-.0125	.1367

********** DIRECT AND INDIRECT EFFECTS OF X ON Y **********

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.0268	.1010	.2653	.7919	-.1760	.2296

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
DESTOT	.0493	.0390	-.0078	.1462

Normal theory test for indirect effect(s):

	Effect	se	Z	p
DESTOT	.0493	.0392	1.2567	.2088

Appendix V: Declaration of authorship

Oxford Institute of Clinical Psychology Training

Oxford Doctoral Course in Clinical Psychology

DECLARATION OF AUTHORSHIP
For Extended Essays, Critical Review, Integrated Clinical Reports, Research Portfolio (Systematic Review of the Literature, Service Improvement Project and Theoretically Driven Research).

Name (in capitals): CHARLOTTE THOMAS-CARMICHAEL

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Submitted Piece of Work (e.g. ICR 1, EE, CR,, Research Portfolio etc.): RESEARCH PORTFOLIO TDRP

Title (in capitals): THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE DEGREE OF DOCTOR OF CLINICAL PSYCHOLOGY (DCLINPSYCH)

SRL: THE IMPACT OF THIRD-WAVE THERAPIES ON PSYCHOLOGICAL OUTCOMES IN PARENTS OF AUTISTIC CHILDREN: A SYSTEMATIC REVIEW.

SIP: IMPROVING CLINICIAN CONFIDENCE AND COMPETENCY IN ADAPTING COGNITIVE BEHAVIOURAL THERAPY FOR AUTISTIC CLIENTS IN THE OXFORDSHIRE EARLY INTERVENTION IN PSYCHOSIS SERVICE.

TDRP: AN INVESTIGATION OF THE RELATIONSHIP BETWEEN EXPERIENCING TRAUMA IN CHILDHOOD VERSUS ADULTHOOD, AND VOICE-HEARING.

Word count: SRL: 6219, SIP: 4976, TDRP: 4994, EXECUTIVE SUMMARY: 570, CONNECTING NARRATIVE: 993

Please tick to confirm the following:

I am aware of the University's disciplinary regulations concerning conduct in examinations and, in particular, of the regulations on plagiarism.	✓
The [thesis/ extended essay/ critical review/ **integrated clinical report**] I am submitting is entirely my own work except where otherwise indicated.	✓
It has not been submitted, either wholly or substantially, for another Honour School or degree of this University, or for a degree at any other institution.	✓
I have clearly signalled the presence of quoted or paraphrased material and referenced all sources.	✓

I have acknowledged appropriately any assistance I have received in addition to that provided by my supervisor.	✓

I agree to retain an electronic copy of this work until the publication of my final examination result, except where handwritten format is permitted. I agree to make any such electronic copy available to the examiners should it be necessary to confirm my word count or to check for plagiarism.

Candidate's signature: C Thomas-Carmichael Date: 09/05/2025

Candidate's name: Charlotte Thomas-Carmichael

For Integrated Clinical Reports

This is to certify that to the best of my knowledge this assignment is the work of the candidate, except where specified.

Signed:

(Supervisor)

Date:

For thesis (all three of the below are required)

Systematic Review

Title**:** THE IMPACT OF THIRD-WAVE THERAPIES ON PSYCHOLOGICAL OUTCOMES IN PARENTS OF AUTISTIC CHILDREN: A SYSTEMATIC REVIEW.

This is to certify that to the best of my knowledge this assignment is the work of the candidate, except where specified.

Signed: ....
(Supervisor(s))

Please print name .....Libby Barnardo…… Date: ……14.05.25……

Service Improvement Project

Title: IMPROVING CLINICIAN CONFIDENCE AND COMPETENCY IN ADAPTING COGNITIVE BEHAVIOURAL THERAPY FOR AUTISTIC CLIENTS IN THE OXFORDSHIRE EARLY INTERVENTION IN PSYCHOSIS SERVICE.

This is to certify that to the best of my knowledge this assignment is the work of the candidate, except where specified.

Signed: .....  .....
(Supervisor(s))

Please print name .....Libby Barnardo…… Date: ……12.05.25……

Theoretically Driven Research Project

Title: AN INVESTIGATION OF THE RELATIONSHIP BETWEEN EXPERIENCING TRAUMA IN CHILDHOOD VERSUS ADULTHOOD, AND VOICE-HEARING.

This is to certify that to the best of my knowledge this assignment is the work of the candidate, except where specified.

Signed: .....  ..... (Supervisor(s))

Please print name: .....Craig Steel…… Date: ……9.5.25…….

NB: Please ensure that you have a signatures from at least one supervisor of each of your three Research Portfolio projects.

Oxford Institute of Clinical Psychology Training

Oxford Doctoral Course in Clinical Psychology

STATEMENT TO BE INCLUDED IN TRAINEE WORK SUBMITTED TO BOARD OF EXAMINERS BY UNIVERSITY OF OXFORD CANDIDATES

For all Pieces of Work

I confirm I have checked this submission for confidentiality errors and confirm that identifying information has been removed or anonymised. (Please see *Confidentiality of Clinical and Research Information and Additional Guidelines for Confidentiality and Anonymity of Integrated Clinical Reports* for what constitutes a confidentiality error).

Signed (Trainee): C Thomas-Carmichael

Please print name (in capitals): CHARLOTTE THOMAS-CARMICHAEL

Date: 09/05/2025

For all Pieces of Work Except the Research Portfolio

Regulations state that "assessed work of candidates should cover a wide range of topics, client groups and clinical approaches. Trainees must ensure that there is not significant overlap in the content of more than two written submissions (extended essays, critical review, integrated clinical reports and service related project)".

I confirm that this submission does not contravene the above regulation.

Signed (Trainee):

Please print name (in capitals):

Date:

For Integrated Clinical Reports Only

Guidelines state that although candidates are encouraged to submit joint work for which the candidate took primary responsibility, only one report where the candidate shared equal responsibility with another professional may be submitted.

I confirm that this submission does not contravene the above guidelines/regulations.

Signed (Trainee):

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Date: