Trauma Type, Comorbidity, and Treatment Response in Youth PTSD: A Clinical Study and Systematic Review with Meta-Analysis of Post-traumatic Stress Disorder and Major Depressive Disorder After Intrafamilial Abuse

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Thesis Portfolio Abstract

Post-traumatic stress disorder (PTSD) in young people is often more severe after multiple traumatic stressors, especially interpersonal violence such as sexual assault, and physical abuse by caregivers. PTSD prevalence in children and adolescence is estimated at 4.7%, with higher rates in females (7.3%) than males (2.2%). Evidence on PTSD and major depressive disorder (MDD) following intrafamilial abuse remains limited. Psychological therapies such as trauma-focused cognitive behavioural therapy are effective for PTSD in trauma-exposed youth, but the generalisability of these effects is less clear.

This thesis portfolio comprises a systematic review and meta-analysis of PTSD and MDD prevalence in children and adolescents exposed to intrafamilial abuse, followed by an empirical study of treatment response and moderators in youth with multiple traumas. Across 15 studies (n = 2,677), the pooled PTSD prevalence was 18.6%, lower than for all interpersonal traumas (25.2%–32.1%) but higher than for non-interpersonal trauma (9.7%–11.8%). Eight studies (n = 1,529) yielded a pooled MDD prevalence of 20.1%, lower than estimates for trauma-exposed youth (24.2%) and interpersonal violence (28.7%). This suggests that intrafamilial abuse may carry greater risk than non-interpersonal trauma, but not necessarily greater risk of PTSD or MDD than other abuse or violence types, though estimates were highly heterogeneous.

The empirical study used secondary DECRYPT data from 120 children and adolescents with multiple traumas receiving either cognitive therapy for PTSD (CT-PTSD) or treatment as usual (TAU). After controlling for baseline post-traumatic stress symptoms (PTSS), being female and experiencing intrafamilial abuse predicted higher PTSS at 11 months, and higher baseline dissociation moderated baseline and 11-month PTSS. After adjusting for treatment arm, disturbances in self-organisation, depression, generalised anxiety, panic symptoms, and

voice hearing predicted higher PTSS at 11 months. Intrafamilial abuse moderated treatment effects, with CT-PTSD more beneficial than TAU. However, most other potential moderators were non-significant. Overall, the findings suggest that youth with multiple traumas respond well to CT-PTSD, with some tentative evidence that treatment effects vary by demographic factors, trauma characteristics, and baseline comorbidity. These findings require cautious interpretation due to modest sample and limited power, highlighting the need for larger longitudinal studies on how clinical presentation shapes treatment response and supports more tailored interventions.

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Introduction to Thesis Portfolio

The thesis portfolio was completed as part of the researcher's Doctorate in Clinical Psychology at the University of East Anglia. The work focuses on children and adolescents with post-traumatic stress disorder (PTSD). PTSD is a condition that can develop after exposure to a traumatic, life-threatening event or serious injury that elicits intense fear, helplessness, or horror (Suliman et al., 2009). Core symptoms include re-experiencing or intrusive memories of the trauma, avoidance of reminders, negative changes in thoughts and feelings, and heightened arousal or hypervigilance. PTSD in children and adolescents is associated with substantial functional impairment, including academic underachievement, interpersonal difficulties, physical health problems, and increased risk of self-harm and suicide (Panagioti et al., 2015; Tian et al., 2022). Lifetime PTSD prevalence has been estimated at 7.8% in a UK sample (Lewis et al., 2019) and 15.9% globally before age 18 (Alisic et al., 2014).

Given the complex and developmental nature of PTSD in this vulnerable group, there is a pressing need to understand how different types of trauma exposure affect children and adolescents. While research on the prevalence rate of PTSD (30-38%) and/or major depressive disorder (MDD) (18.4%-24.7%) is abundant for adults who had experienced child maltreatment (De Bellis et al., 2019; Scott et al., 2023; Widom, 1999), little is known regarding more immediate impact of the exposure in the population of children and adolescents, especially abuse that happened with someone or situations that involve personal relationship before reaching adulthood. Intrafamilial abuse is one of the most common and developmentally salient forms of interpersonal trauma, occurring within relationships that are expected to provide safety and care, and is therefore likely to confer particularly high risk for

PTSD and MDD. The effects of intrafamilial abuse on health and wellbeing can persist into adulthood, with abuse contributing to poorer physical and mental health outcomes, increasing the risk of adult mental health conditions (Bürgin et al., 2021; Malvaso et al., 2022; Petersen et al., 2022). Existing meta-analyses typically combine intrafamilial abuse with other adversities such as community violence or peer victimisation, which obscures potential differences in prevalence associated with abuse perpetrated by caregivers. This thesis therefore includes a systematic review and meta-analysis to examine how specific trauma type may be differentially associated with PTSD and/ or MDD prevalence in children and adolescents before adulthood. Early intervention is widely recommended to improve prognosis for children and adolescents with PTSD, but the interplay of risk and protective factors is complex (Kerbage et al., 2022).

According to the NICE guideline, the primary treatment recommended is Cognitive Therapy for Post-Traumatic Stress Disorder (CT-PTSD) for children and adolescents with PTSD (NICE, 2018). The clinical presentation of PTSD is particularly severe in young individuals who have experienced multiple traumatic stressors, such as physical or sexual abuse, witnessing domestic violence, war, or community violence (Holt et al., 2007; Suliman et al., 2009). Compared to youth with single-event trauma, youth exposed to multiple traumatic stressors had a higher likelihood of various emotional disorders, impaired performance in education, work, and social interactions, increased reliance on mental health resources, and diminished physical well-being (Hughes et al., 2017; Tong et al., 2024). Consequently, it is essential to evaluate the factors that may moderate treatment response in those exposed to multiple traumas in this empirical paper. This knowledge is crucial for informing clinical interventions, prevention strategies, and trauma-informed responses across educational, social, and legal systems, ultimately improving understanding and treatment of PTSD in

children and adolescents exposed to multiple traumas. The portfolio consists of five chapters with the main body of work being presented within the systematic review (chapter one) and the empirical paper (chapter three).

Chapter One: This chapter presents a systematic review using meta-analysis. The aim of the review is to establish the prevalence of PTSD and/or MDD in children and adolescents exposed to intrafamilial abuse.

Chapter Two: A concise bridging chapter outlines the link between the systematic review and the empirical paper. Having examined the prevalence of PTSD following trauma exposure, as per NICE guideline, active monitoring or individual trauma-focus CBT is recommended to support trauma-exposed children and adolescents. It is essential to examine the factors that moderate treatment response in trauma-exposed children and adolescents.

Chapter Three: The empirical study is presented. The literature on treatment moderators for youth PTSD has been described as limited and inconclusive. To the best of the author's knowledge, no studies have explored how a broader range of factors moderate treatment response in children and adolescents exposed to multiple traumas. Therefore, moderation analysis was conducted to examine the impact of individual demographics, trauma characteristics and co-occurring symptoms on response to trauma treatment in youth with the experience of multiple traumas.

Chapter Four: Chapter Four presents an integrated summary of the meta-analysis and empirical study findings, offering a comprehensive evaluation of the thesis portfolio. Theoretical and clinical implications are discussed, along with directions for future research.

Chapter 1

Systematic Review and Meta-Analysis

prepared for submission to: Psychological Medicine

Author Guidelines available in Appendix A.

The research reported is original work which was carried out under the supervision of Richard Meiser-Stedman (Primary Supervisor) and Kenny Chiu (Secondary Supervisor). I am the lead author of this paper which is prepared for journal submission.

Prevalence of PTSD and/or Depression in children and adolescents exposed to intrafamilial abuse and maltreatment : A systematic review and meta-analysis

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Abstract

Intrafamilial abuse is common worldwide and disrupts core developmental processes, including attachment, emotion regulation, and beliefs about safety, leaving children and adolescents at heightened risk of post-traumatic stress disorder (PTSD) and major depressive disorder (MDD). Despite extensive research on child maltreatment, the prevalence of PTSD and MDD following intrafamilial abuse in this population has not been comprehensively synthesised. A preregistered systematic review and meta-analysis was conducted to estimate PTSD and/or MDD prevalence in children and adolescents exposed to intrafamilial abuse. Major psychological and medical databases were systematically searched for peer reviewed observational studies published from 1980 onwards that used validated diagnostic interviews or symptom questionnaires with participants aged 6–18 years. Twenty articles met inclusion criteria, with sixteen samples reporting prevalence for PTSD (n = 2761) and eight samples reporting prevalence rates for MDD (n = 1529). The pooled PTSD prevalence was 18.6% (95% CI 0.13, 0.24) among intrafamilial abuse exposed youth and did not differ significantly by abuse type, measurement method, or study quality. The pooled MDD prevalence was 20.1% (95% CI 0.10, 0.30); too few MDD studies were available for moderator analyses. Although pooled PTSD and MDD prevalence estimates for intrafamilial abuse were lower than in interpersonal trauma estimates from existing meta-analyses, they remained substantially higher than general prevalence rates. These estimates should be interpreted cautiously given high heterogeneity (I^2>90%) and contextual differences (for example absence of war-exposed samples and few sexual-abuse-only studies). Intrafamilial abuse therefore appears to be a potent risk factor for PTSD and MDD in young people, underscoring the need for proactive, trauma-informed, multi-informant screening.

Key words: Stress Disorder, Post-Traumatic/ epidemiology*, Major Depressive Disorder, Intrafamilial Abuse, Adolescent, Prevalence

Introduction

Child maltreatment is a prevalent public health concern associated with short- and long-term physical and mental health consequences for children (Mehta et al., 2023). Intrafamilial abuse, which includes physical, sexual, emotional abuse and neglect by caregivers, interferes with a fundamental stage of childhood development involving the formation of safe, stable, and nurturing relationships. According to the World Health Organisation, many children are subjected to abuse by parents or caregivers, including physical violence and psychological abuse (WHO, 2022). Estimates of familial sexual victimisation in the general population range from 1 to 15 % (Andersson et al., 2020; Kim & Kim, 2005; Radford et al., 2013), and around one-third of sexual abuse convictions are intrafamilial (Snyder, 2010). Abuse within close relationships breaches the attachment bond between caregiver and child. This can occur through a lack of emotional nurturance, attunement, and responsiveness, and/or through overt verbal and emotional abuse, and can therefore have particularly profound effects.(Spinazzola et al., 2014). The effects of child maltreatment, particularly intrafamilial abuse often persist into adulthood, contributing to poorer physical and mental health and increasing the risk of conditions such as depression and PTSD (Bürgin et al., 2021; Bushnell et al., 1992; Malvaso et al., 2022; Petersen et al., 2022; Trickett et al., 2001).

Developmental impact of intrafamilial trauma

Exposure to maltreatment by caregivers alters the social and neurobiological foundations of emotional development. Early interpersonal trauma undermines a child's expectations of safety and shapes internal working models of attachment, trust, and self-worth (Pandey & Gupta, 2025). The Developmental Trauma Theory (Cruz et al., 2022) refers to prolonged, cumulative interpersonal trauma which occurs through sensitive periods of infant and child

development, and disrupts attachment, safety, and core cognitive, emotional, and behavioural regulation capacities. These experiences can fundamentally alter beliefs about vulnerability and danger from the world. The recurrent lack of safety may create a self-perpetuating cycle of maladaptation, making individuals more prone to internalising disorders (Troisi, 2020). Neurobiological studies indicate that chronic exposure to abuse affects the stress-response system and neural pathways that regulate emotions, particularly within the amygdala, hippocampus, and prefrontal cortex (VanTieghem & Tottenham, 2017). These alterations are associated with heightened threat sensitivity, difficulties in managing negative emotions, and alterations in cognitive control, reflecting transdiagnostic features observed across PTSD and depression (Engelmann et al., 2013; Shankman et al., 2013).

PTSD and MDD in maltreated youth: prevalence and comorbidity

Child maltreatment is strongly associated with both PTSD and major depressive disorder (MDD), which frequently co-occur and confer greater impairment than either disorder alone (Flory & Yehuda, 2015). Research on adults with histories of maltreatment suggests high lifetime prevalence rate of PTSD (30-38%) and/or MDD (18.4%-24.7%), underlining the enduring psychiatric burden of early adversity (De Bellis et al., 2019; Scott et al., 2023; Widom, 1999). The co-occurrence of PTSD and MDD is common in trauma-exposed populations and is associated with more severe symptoms, poorer functioning, and increased suicide risk (Flory & Yehuda, 2015; Hoppen et al., 2025). Research suggests possible causal and symptomatic overlap, with post-traumatic hyperarousal and avoidance symptoms sometimes preceding the development of depressive syndromes (Flory & Yehuda, 2015). Interventions focused on trauma processing alone may be insufficient without concurrent strategies addressing cognitive distortions, hopelessness, and mood dysregulation (Hoppen et

al., 2025). Understanding MDD, therefore, is integral to capturing the full effects of intrafamilial abuse.

Despite this, comparatively less is known about the more immediate prevalence of PTSD and MDD among children and adolescents who are still within the developmental period and whose abuse often occurs in close interpersonal relationships. In the general adolescent population, PTSD prevalence has been estimated at around 4.7%, with significantly higher rates among females (7.3%) than males (2.2%) (McLaughlin. et al., 2013). Children and adolescents exposed to interpersonal violence, including rape, sexual assault, and physical abuse by caregivers or romantic partners, appear to be at particularly high risk for PTSD onset (McLaughlin et al., 2013). Lifetime PTSD prevalence is especially elevated among those who have been sexually assaulted (50–74.1%) or physically assaulted (12–61%)(Giaconia et al., 1995), compared with those who have only witnessed someone being seriously hurt or killed (8.2%) before age 18 (Lewis et al., 2019).

For MDD, prevalence in adolescents has been reported to range from approximately 9% to 34% (Adewuya & Ologun, 2006; Shorey et al., 2022). Among adolescents with histories of maltreatment, rates are even higher; one study found that 32% of those who had been abused and 46% of those who had been neglected met criteria for depression (Tsehay et al., 2020). A recent systematic review further indicated that MDD is more prevalent in females (32%) than males (24%), with additional variation in prevalence across countries and self-report measures. Together, these findings highlight PTSD and MDD as key, often co-occurring outcomes of maltreatment in youth with significant implications for functioning and long-term trajectories.

The focus on intrafamilial abuse

Overall, wide-ranging prevalence estimates indicate that PTSD and MDD in adolescents vary systematically by type of child abuse, gender, country, and age. Intrafamilial abuse is one of the most common forms of traumatic exposure in childhood and represents a particularly salient form of interpersonal trauma(Stoltenborgh et al., 2011). However, previous meta-analysis on trauma-exposed children and adolescents has shown that PTSD prevalence after interpersonal trauma spans a broad confidence interval (25.2% [95% CI 0.16, 0.35]), indicating marked heterogeneity in reported rates (Alisic et al., 2014). Identifying more specific and precise estimates for intrafamilial abuse is therefore important for clarifying its impact on children's mental health.

Despite decades of research, a comprehensive synthesis of the prevalence of PTSD and MDD among children and adolescents exposed specifically to intrafamilial abuse is lacking. Prior reviews have largely aggregated different forms of adverse childhood experience (including direct or indirect community violence and interpersonal abuse) or combined child and adult retrospective samples, obscuring developmental and contextual differences. Moreover, the increasing recognition of emotional abuse and neglect as significant traumas necessitates updated evidence encompassing broader definitions of intrafamilial abuse (Azar et al., 1998; Hayashi, 2022; North, 2017). The transition from DSM-IV to DSM-5 and ICD-10/ICD-11 diagnostic frameworks has also led to more nuanced conceptualisations of clinical presentation especially trauma response, underscoring the need for a synthesis that reflects modern diagnostic criteria.

Evidence-based interventions such as trauma-focused cognitive behavioural therapy can reduce both PTSD and depressive symptoms, although findings are mixed and appear to depend on individual factors (for example age, gender, domicile), trauma characteristics, and the outcome measures used (Danzi & La Greca, 2021; de Haan et al., 2024). Overall, PTSD

and MDD in maltreated youth are associated with marked functional impairment, including academic underachievement, interpersonal difficulties, physical health problems, and heightened suicide risk (Mullen, 2018; Panagioti et al., 2015). Recognising the scale of these conditions among intrafamilial abuse survivors is therefore crucial for guiding clinical intervention, prevention, and trauma-informed responses across educational, social, and legal systems. To the authors' knowledge, no prior review has systematically synthesised prevalence estimates of PTSD and MDD specifically in children and adolescents exposed to intrafamilial abuse.

The present systematic review and meta-analysis aimed to synthesise global evidence on the prevalence of PTSD and MDD among children and adolescents who have experienced intrafamilial abuse. Specifically, this study sought to (1) estimate pooled prevalence rates of PTSD and/or (2) MDD after exposure to intrafamilial abuse, and (3) examine differences by possible moderators: measurement method (clinical interview vs self-report questionnaire), respondents (child reported vs parents reported), age (primary school 6-11 vs high school 12-18), gender (male vs female), country (high income vs low income)types of abuse (sexual vs physical, direct vs indirect) on prevalence estimates. By integrating findings across multiple disciplines and settings, this review aims to provide a more accurate and developmentally informed understanding of the psychological adversity associated with intrafamilial abuse.

Methods

The protocol was listed on the prospective register of systematic reviews (PROSPERO; CRD420250624026) in April 2025.

Studies for inclusion in the meta-analysis were identified through following a systematic search of leading psychological and medical literature databases, including PubMed

(MEDLINE), PsycInfo, PsycARTICLES, Embase and the National Centre for PTSD research's Published International Literature on Traumatic Stress (PTSDPubs) database. Reference lists of included major studies were searched as well as citation databases such as ProQuest dissertations & theses. All studies in initial search results were published from 1980 onwards (when PTSD for children was first included in DSM). Search terms were categorised into: 1) Exposure to intrafamilial abuse, 2) PTSD, 3) depression and 4) child and adolescent age range (detailed in Appendix B). As studies on prevalence rate of PTSD and/ or depression were abundant in the adult population, search term that specify children and adolescents was essential. The researcher screened all study titles and abstracts from the initial search. Subsequently, all full articles were reviewed with good inter-rater agreement between first author and another author (MB) (ICC=.83, 95% , CI [.76, .91]).

Inclusion and exclusion criteria

Studies were included if they were:

1. Academic, peer-reviewed studies that include children and adolescents with PTSD and/or depression, defined as at least one of the following: meeting the cut-off on a validated PTSD or depression symptom questionnaire; meeting diagnostic criteria for PTSD or depressive disorders on a structured clinical interview; or being classified as having moderate to severe symptomatology on a validated PTSD or depression questionnaire.

2. Studies in which participants are children or adolescents aged 6–18 years at the time of the initial assessment, or in which the reported mean age of the sample falls between 6 and 18 years.

3. Studies that include children and adolescents with documented experiences of intrafamilial child maltreatment, including intrafamilial physical abuse, emotional abuse, neglect, and/or witnessing physical or emotional abuse between family members.

Studies were excluded if:

1. Book chapters.

2. Treatment intervention studies or studies with biased sample (e.g., only recruiting patients with depression/ PTSD) due to attracting high prevalence rate sample.

3. Meta-analyses, systematic reviews, qualitative design, single-case studies.

4. Studies in which prevalence is measured before one month post-trauma (since PTSD cannot be diagnosed due to DSM criteria).

5. Studies not published in English.

6. Studies reported insufficient data to calculate prevalence or effect sizes or the aim of the study was to investigate the efficacy of treatment.

Study collection and data extraction

A data extraction spreadsheet was created to record information from all studies included in the meta-analysis. This included authors, study title, date of publication, country of origin, study design, sample population, recruitment method, sample size, mean age (standard deviation), age range of sample, type of domestic abuse, method of assessment, prevalence of PTSD and/or depression and total number of participants. The categorisation of high or low income country is based on World Bank Income groupings (Metreau, 2024). The distinction

between direct and indirect abuse was drawn from Lewis et al.'s (2019) systematic review, in which direct abuse encompasses physical, sexual, and emotional abuse as well as neglect, while indirect abuse refers solely to witnessing abuse (Lewis et al.,2019).

Quality assessment

The Cochrane Collaboration Risk of Bias Tool (Higgins et al., 2011) and the National Heart, Lung, and Blood Institute tool for observational studies (National Heart Lung and Blood Institute, 2014) were initially used to guide assessment of methodological quality in this prevalence-focused systematic review. Because all 20 included studies were non-randomised and varied in design and reporting, a bespoke tool was developed to provide a consistent numeric evaluation of risk of bias across studies. This 9-item tool, derived from domains and signalling questions in the existing frameworks, assessed six bias domains (selection, performance, detection, attrition, reporting and other), with each item scored 0–2 to yield a maximum score of 18; higher scores indicated higher quality, and scores above 12 were classified as low risk/high quality (see Appendix C for full version).The tool was piloted on a subset of the included studies and refined to improve clarity and coverage of bias relevant to prevalence estimates, with content validity supported by its grounding in established risk-of-bias guidance and supervisory review. The first author independently rated all studies and a second reviewer rated approximately one-third; any discrepancies were resolved by discussion and consensus, ensuring reliable and consistent application of the bespoke tool across the review.

Statistical analysis

Statistical analysis was conducted using the metafor package (Viechtbauer, 2010) in R (v 4.3.3, 2024). Random effects models were used to compute weighted estimates of PTSD

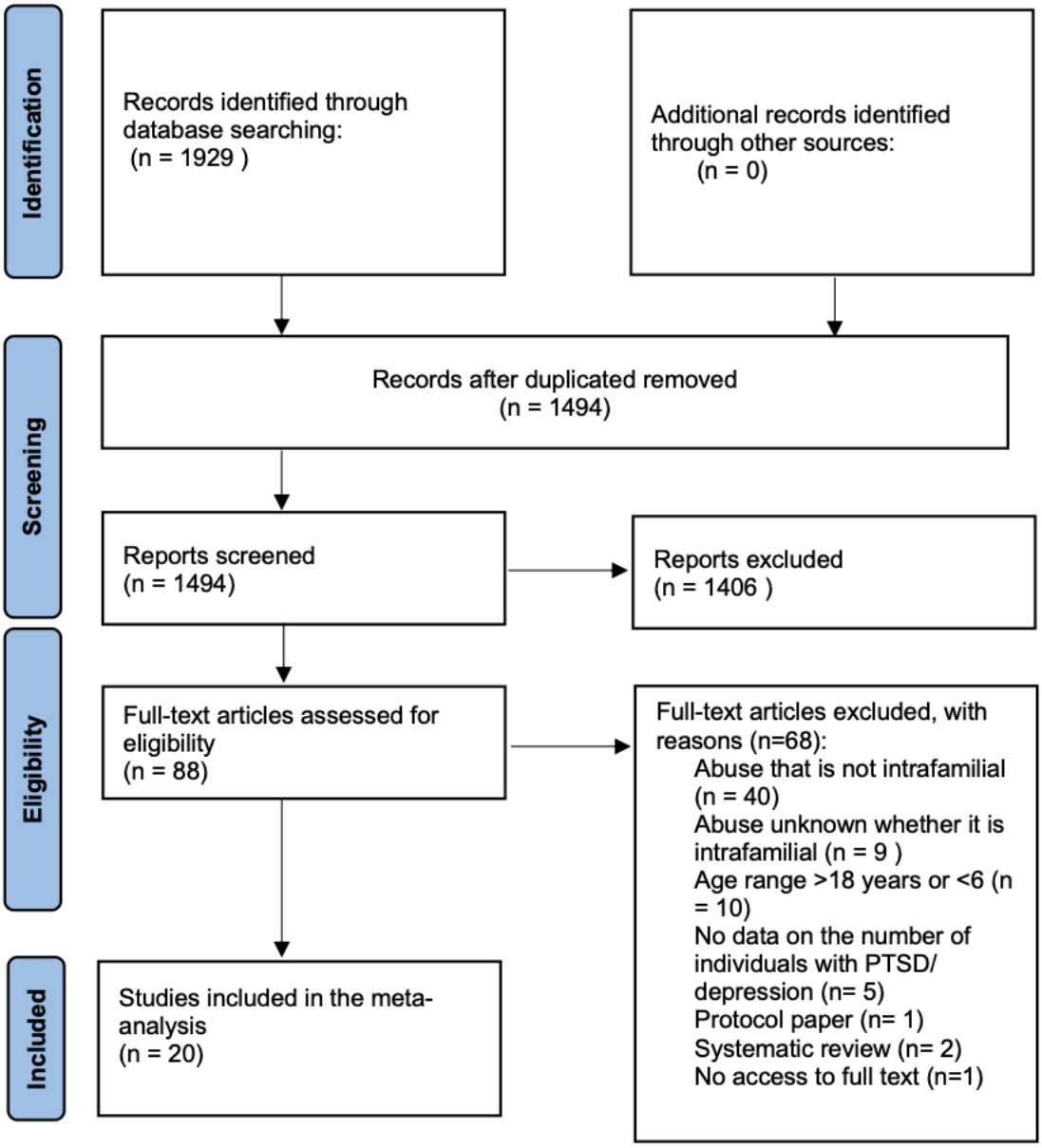
and/or MDD prevalence in children and adolescents exposed to intrafamilial abuse. The arcsine transformation was used to account for heterogeneity due to the diversity of index exposure and study design (i.e. 95% confidence intervals going below zero) when estimating prevalence (Barendregt et al., 2013). Heterogeneity across studies was assessed using Cochran's Q test, the I^2 statistic, and prediction intervals. According to the I^2 statistic, values exceeding 50% indicate moderate heterogeneity, whereas values of 75% or greater reflect a high level of heterogeneity (Higgins & Thompson, 2002). Cochran's Q test was used to determine whether heterogeneity among studies was statistically significant (Cochran, 1954). Prediction intervals provide an estimate of the range in which future study effects are expected to lie with 95% probability.

Results

Outcome of Search Process

A Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) flowchart (Figure 1) is provided as a summary of the search and selection process. The search identified 1929 references. Following removal of duplicates there remained 1494 studies which were screened on title and abstract by the first author. Full text screening was carried out for the 88 papers which were screened as relevant. All full-text articles were cross-screened by MB, yielding 95% inter-rater reliability. 20 studies met the final inclusion criteria for the review.

Figure 1. PRISMA flow chart



Study characteristics

A summary of included study characteristics is presented in Table 1 and Table 2. The studies were published between 1994 and 2024 and examined a total of 2677 (16 studies) and 1529 (8 studies) children and adolescents who were exposed to intrafamilial abuse and developed

PTSD and MDD respectively. Participants ranged from age five to nineteen. The studies spanned countries including the United States (k= 10), Brazil (k= 3), and one each from Canada, Nigeria, Uganda, Iran, Spain, Taiwan and Belgium. All studies used recognised diagnostic criteria to assess PTSD/MDD based on DSM criteria. Eight studies in PTSD and five studies in MDD used standardised structured or semi-structured interviews, whereas seven studies in PTSD and three studies in MDD used self-report questionnaires. Different types of traumas were reported: nine PTSD studies and five MDD studies reported indirect intrafamilial abuse, this included witnessing to domestic violence (or intimate partner violence). Four PTSD studies and three MDD studies specified that children and adolescents experienced intrafamilial physical abuse. Multiple studies did not specify the type of trauma, particularly regarding single versus multiple event trauma, making it challenging to determine whether participants had experienced repeated exposures.

Table 1. Study Characteristics of PTSD studies

Study	N*	Age range (Mean, SD)	Female (%)	Country	Exposure Type	Trauma Code	Interview/ Self-report	School/ Community	PTSD Measure	Study Quality
Avanci et al., 2021	123	13-19 (15, NR)	65	Brazil	Direct[1]	PV	Self-report	School	UCLA PTSD-RI	12 (Low)
Bal et al., 2004	63	12-18 (14.34, 1.82)	87	Belgium	Direct	SA	Interview	Community	CAPS-CA	7 (Low)
Castro et al., 2017	152	8-17 (11.41, 2.84)	44.1	Spain	Indirect[2]	DV	Self-report	Community	CPSS	18 (High)
Chemtob & Carlson, 2015	25	7-17 (11.2, NR)	NR	USA	Indirect	DV	Interview	Community	CAPS–CA	8 (Low)
Famularo et al., 1994	109	5-12 (NR)	NR	USA	Direct	NG	Interview	Community	DICA-6-R	13 (High)
Graham-Bermann & Levendosky, 1998	64	7-12 (9.5, 1.92)	48.4	USA	Indirect	DV	Self-report	Community	CBCL, DSM-IV	11 (Low)
Graham-Bermann et al., 2006	218	5-13 (8.49, 2.16)	NR	USA	Indirect	DV	Self-report	Community	TSSC	8 (Low)
Hebert et al., 2014	470	14-18 (NR)	82.5	Canada	Direct	SA	Interview	School	UCLA PTSD-RI	14 (High)
Hooshyari et al., 2024	732	6-18 (NR)	51	Iran	Indirect	DV	Interview	Community	K-SADS	18 (High)
Kaplan et al., 1998	99	12-18 (NR)	50	USA	Direct	PV	Interview	Community	DICA-3-R	12 (Low)
Kulka et al., 2020	43	11-18 (NR)	65.1	Brazil	Indirect	DV	Self-report	Community	CBCL, YSR	8 (Low)
Lipschitz et al., 1999	34	6-18 (14.8, 1.6)	52.7	USA	Indirect	DV	Self-report	Community	CPTS-RI, DICA-R	15 (High)
McCloskey & Walker, 2000	191	6-12 (9.3, 1.9)	51	USA	Indirect	DV	Self-report / Interview	Community	CAS, CBCL	12 (Low)
Pelcovitz et al., 2000	32	12-18 (15.4, 1.9)	53	USA	Direct	PV	Interview	Community	K-SADS	9 (Low)
Wechsler-Zimring & Kearney, 2011	84	11-17 (14.4, 1.0)	55.9	USA	Direct	PV/SA	Self-report	Community	CAPS-CA	7 (Low)
Zinzow et al., 2009	322	12-17 (NR)	NR	USA	Indirect	DV	Interview	Community	NSA survey (PTSD)	16 (High)

Notes: N* = N of children and adolescents exposed to intrafamilial abuse, NR= Not reported; PTSD=Post-traumatic disorder; PV=Physical violence; SA=Sexual abuse; DV=exposure/witness domestic violence; NG=Neglect; UCLA PTSD-RI=The UCLA PTSD Reaction Index; CAPS-C=Clinician-Administered PTSD Scale for Children and Adolescents; CPSS= Child PTSD Symptom Scale; DICA-6-R= Diagnostic Interview for Children and Adolescents, Version 6-Revised; CBCL=

[1] Direct abuse (directly experience by children or adolescents)

[2] Indirect abuse (witness only)

The Child Assessment Schedule; TSSC=The Traumatic Stress Symptoms Child Scale; YSR= The Youth Self-Report; CPRS-RI= Child Post-traumatic Stress Reaction Index; CAS=The Child Assessment Schedule; K-SADS= Kiddie Schedule for Affective Disorders and Schizophrenia; NSA= National Survey of Adolescents. All PTSD studies included were from high income countries.

Table 2. Study Characteristics of MDD studies

Study	N*	Age range (Mean, SD)	Female (%)	Country	Country status	Exposure Type	Trauma Code	Interview/ Self-report	School/ Community	MDD Measures	Study Quality
DadeMatthews et al., 2024	213	12-18 (15.3,1.27)	51.2	Nigeria	LI	Indirect	DV	Interview	School	MINI-KID	15 (High)
Kaplan et al.,1998	99	12-18 (NR)	50	USA	HI	Direct	PV	Interview	Community	*K*-SADS-E, CTRS	12 (Low)
Kinyanda et al., 2013	273	3-19 (NR)	53.7	Uganda	LI	Indirect	DV	Interview	Community	MINI-KID	15 (High)
Kulka et al., 2020	43	11-18 (NR)	65.1	Brazil	HI	Indirect	DV	Self-report	Community	CBCL, YSR	8 (Low)
Pelcovitz et al., 2000	32	12-18 (15.4,1.9)	53	USA	HI	Direct	PV	Interview	Community	MINI-KID	9 (Low)
Silva et al., 2021	333	6-9 (NR)	50.8	Brazil	HI	Indirect	DV	Self-report	Community	SMFQ-P	12 (Low)
Yen et al .,2008	214	13-18 (14.4,1)	50.8	Taiwan	HI	Direct	PV	Self-report	School	ZDS	9 (Low)
Zinzow et al., 2009	322	12-17 (NR)	NR	USA	HI	Indirect	DV	Interview	Community	NSA survey (MDD)	16 (High)

Notes: N* = N of children and adolescents exposed to intrafamilial abuse, NR= Not reported; MDD=Major Depressive disorder; HI=high Income; LI= Low Income; PV=Physical violence; DV=exposure/witness domestic violence; MINI-KID= The Mini International Neuropsychiatric Interview version for children; K-SADS= Schedule for Affective Disorders and Schizophrenia for School-Age Children—Epidemiologic Version modified for DSM-III-R; CRRS=Conner's Teacher Rating Scale; CBCL= The Child Assessment Schedule; YSR= The Youth Self-Report; SMFQ-P =Short Mood and Feelings Questionnaire; ZDS= The Zung Depression Scale; NSA= National Survey of Adolescent

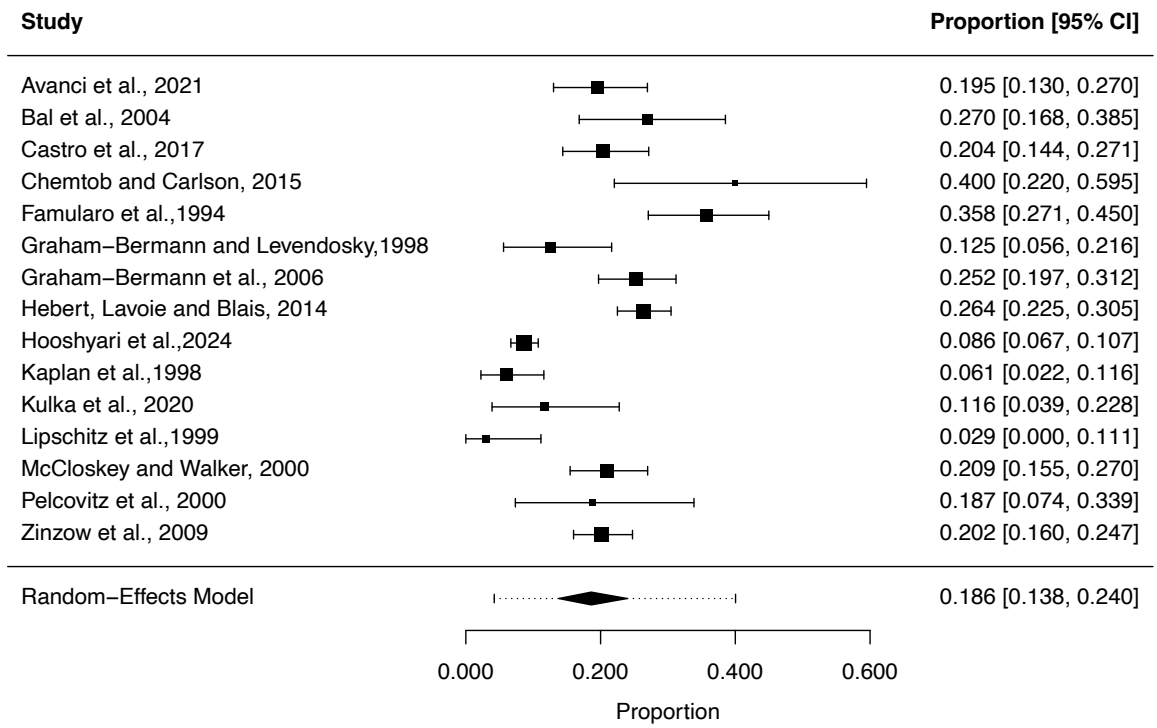
Quality assessment

The 20 included studies were assessed with the risk of bias tool designed for this study (Appendix C). Six PTSD studies were rated as high quality (i.e. scoring 13 or above out of a total of 18), and nine studies were rated as low quality. For MDD studies, three were rated as high quality and five were rated as low quality. Inter-rater reliability was calculated using interclass correlation coefficient (ICC) analysis, using a two-way mixed-effect model. The ICC indicated a high level of inter-rater reliability across the author and MB (ICC=.89, 95% , CI [.79, .95]).

RQ1. Prevalence of PTSD in children and adolescents who were exposed to intrafamilial abuse

With 16 studies included available for RQ1 and a total number of 2761 participants, the pooled prevalence of PTSD within children and adolescents exposed to intrafamilial abuse was 22.7% (95% CI 0.13, 0.33). However, there was an outlier (Wechsler-Zimring & Kearney, 2011) based on detecting outliers iteratively; this was therefore removed from the analysis following a recommendation on how to address outlier studies (Meng et al., 2024). The remaining 15 studies with 2677 participants revealed a pooled prevalence of PTSD as 18.6% (95% CI 0.13, 0.24). The Q-test for pooled estimates was significant with considerable heterogeneity observed between studies ($Q(df = 14) = 140.01$, $p < .0001$, $I^2 = 90.03\%$); the prediction interval was 0.04% to 40.04%, see Forest plot Figure 2 .

Figure 2 . RQ1 forest plot for prevalence of PTSD, following removal of outlier



Moderator and sensitivity analysis

Moderator analyses were performed using random effects models to examine differences in pooled prevalence estimates based on covariates aforementioned. Additionally, moderator analysis was conducted to assess differences in prevalence related to study quality, categorised as either high or low-quality studies.

Moderator analyses for interviews and type of abuse (indirect abuse, physical abuse) did not significantly affect the prevalence of PTSD when all studies with available data were considered (Table 3). For these moderators, all Q test results were highly significant, with I^2 values exceeding 90%, indicating substantial heterogeneity across the studies. Similarly,

study quality also did not significant affect the prevalence of PTSD. No moderator analysis was conducted for age, gender, respondents and sexual abuse as there was insufficient data for each subgroup, for example, there was no separate prevalence rate of developing PTSD in a particular age or gender group. Moreover, the imbalance between subgroups limited moderation analysis. For example, all studies were conducted in high-income countries and only one study was parent-reported.

Although not statistically significant, prevalence rate was shown to be higher when being clinical interviewed (21%) compared to self-report (16.7%). Similarly, while direct abuse (21.5%) had a higher prevalence rate than indirect abuse (16.8%), physical abuse (15.7%) revealed a lower prevalence rate than a mixed presentation of exposure (19.7%). However, given the small number of studies in this subgroup (k = 4) this finding should be considered with caution. We did not run separate sensitivity analyses within every non-significant subgroup due to the small numbers of studies.

Table 3. Meta-analysis outcome for PTSD prevalence, including sub-group and moderator analyses

				Heterogeneity			
	k	**N**	**Prevalence (%)**	**95% CI**	**Q test**	**I²**	**95% PI**
All studies	15	2677	18.6	13.8-24.0	140.0	90.0	0.0-40.0
Sub-group analyses							
Self-report vs Interview							
Self-report	7	825	16.7	11.5-22.7	19.9	76.5	5.6-32.3
Interview	8	1852	21.0	13.1-30.2	117.3	93.9	3.2-48.7
Moderation analysis:			Not significant (QM(df = 1) = 0.77, p = 0.38)				
Indirect vs Direct abuse							
Indirect abuse	9	1781	16.8	11.1-23.2	73.2	89.5	3.4-37.1

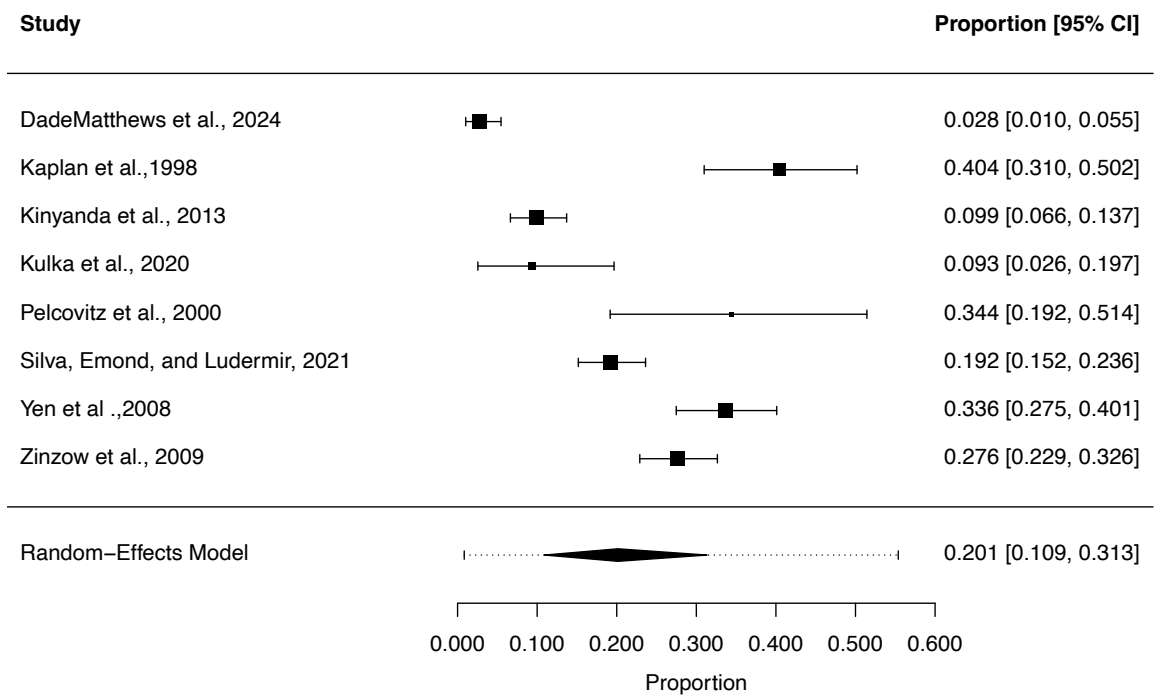
Direct abuse	6	896	21.5	13.2-31.1	28.3	88.4	4.4-46.6
Moderation analysis:			Not significant (QM(df = 1) = 0.78, p = 0.37)				
Physical abuse	4	445	15.7	8.57-24.4	14.7	79.4	3.4-34.4
Non specified abuse	11	2232	19.7	13.6-26.6	124.8	92.2	37.8-54.2
Moderation analysis:			Not significant (QM(df = 1) = 0.48 p = 0.48)				
High vs low study quality							
High quality	6	1819	18.0	9.43-28.6	104.3	96.0	1.35-47.4
Low quality	9	858	18.8	13.2-25.2	33.2	78.1	5.60-37.5
Moderation analysis:			Not significant (QM(df = 1) = 0.019, p = 0.89)				

PTSD= post-traumatic stress disorder, PI= Prediction Interval. All of the Q tests were significant at p<.05.

RQ2. Prevalence of MDD in children and adolescents who were exposed to intrafamilial abuse

With eight studies included available for RQ2 and a total number of 1529 participants, the pooled prevalence of MDD within children and adolescents exposed to intrafamilial abuse was 20.1 % (95% CI 0.10, 0.31). The Q-test for pooled estimates was significant with considerable heterogeneity observed between studies (Q(df = 7) = 154.1, p < .0001, I^2= 95.89%); the prediction interval was 0.08% to 55.4%, see Forest plot Figure 3 .

Figure 3. RQ2 forest plot for prevalence of MDD



Sub-group analysis

No moderator analysis was performed due to insufficient studies (Table 4). Interviews and type of abuse (indirect abuse, physical abuse) did not significantly affect the prevalence of MDD when all studies with available data were considered. For these moderators, all Q test results were highly significant, with most studies I^2 values exceeding 90%, indicating substantial heterogeneity across the studies. Similarly, study quality also did not significant affect the prevalence of MDD.

Although not significant, prevalence rate was shown to be higher for direct abuse (35.6%) compared to indirect abuse (12.7%). Similarly, high quality studies (11.6%) revealed a

lower prevalence rate than low quality studies (26.6%). However, given the small number of studies in these subgroup (k = 3 vs 5), these findings should be considered with caution.

Table 4. Meta-analysis outcome for MDD prevalence, including sub-group and moderator analyses

				Heterogeneity			
	k	**N**	**Prevalence (%)**	**95% CI**	**Q test**	**I²**	**95% PI**
All studies	8	1529	20.1	10.9-31.3	154.1	95.9	0.84-55.4
Sub-group analyses							
Self-report vs Interview							
Self-report	3	590	20.5	8.84-35.6	21.1	92.72	2.15-50.8
Interview	5	939	20.2	7.25-37.6	121.7	96.9	0.00-64.3
Moderation analysis:				Insufficient studies			
Indirect vs Direct abuse							
Indirect abuse	5	1184	12.7	5.23-22.7	88.0	95.1	0.23-39.5
Direct abuse	3	345	35.6	30.6-40.8	1.35	0.00	30.7-40.8
Moderation analysis:				Insufficient studies			
High vs low study quality							
High quality	3	808	11.6	1.64-28.9	80.6	97.5	0.00-49.8
Low quality	5	721	26.6	16.0-38.8	33.9	90.2	5.75-55.6
Moderation analysis:				Insufficient studies			

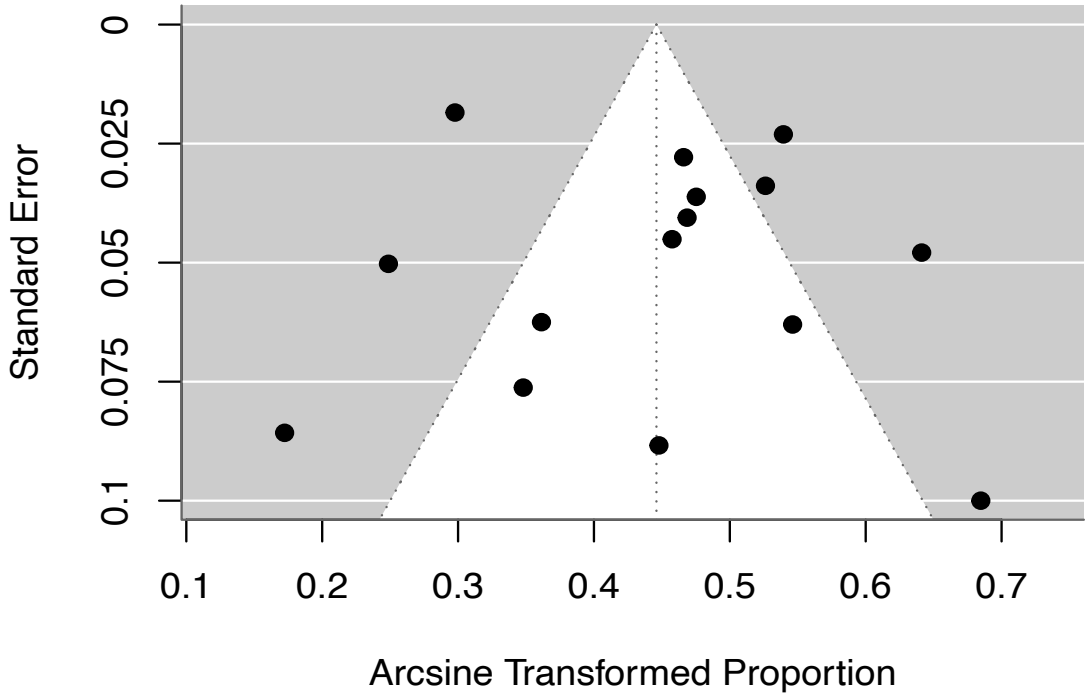
MDD= major depressive disorder, PI= Prediction Interval. All of the Q test was significant at p<.05.

Publication bias

Publication bias was assessed by visually inspecting a full plot, trim and fill analysis, and Egger's regression test for each of the main meta-analyses (Duval & Tweedie, 2000; Egger et al., 1997; Higgins & Altman, 2008). The funnel plot (Figure 4) showed that studies were evenly distributed across high variability. The Egger test for funnel plot asymmetry suggested

no significant publication bias, z=-0.15,p=0.88. The limit estimate as the standard error approaches zero was b=0.4572(95% CI: [0.30, 0.62]). Publicaiton bias was not assessed for pravelance of MDD due to the number of studies include being less than the recommended number of ten (Higgins et al., 2011).

Figure 4. RQ1 Funnel plot for prevalence of PTSD in children and adolescents exposed to intrafamilial abuse



Discussion

Although it is evident that exposure to interpersonal abuse increases risk of developing mental health disorders, to date there has been no estimate of PTSD and/or MDD in youth exposed to intrafamilial abuse. The primary RQ1 drew from 15 studies with 2677 participants indicated a pooled prevalence of PTSD as 18.6 %. This rate is similar to previous estimates of PTSD in trauma-exposed youth which is between 15.9% and 20.3% (Alisic et al., 2014; Visser et al., 2025). However, when focused on only interpersonal trauma, our study

examining only intrafamilial abuse was lower than meta-analysis of 20 studies examining all types of interpersonal trauma, such that 25.2% (95% CI 0.16, 0.35; Alisic et al., 2014) and 32.1% (95% CI 0.22, 0.42; Visser et al., 2025). These findings should be interpreted with caution, given the relatively wide prevalence intervals. Our prevalence rate was still higher than the rate reported for non-interpersonal trauma in the Alisic study (9.7%) and Visser (11.8%) reviews, suggesting that exposure to intrafamilial abuse may be more prevalent than exposure to non-interpersonal trauma.

Eight studies with 1529 participants yielded a pooled MDD prevalence of 20.1% for RQ2. Similarly, our meta-analysis showed a lower than previously indicated prevalence of 24.2% of trauma-exposed youth and 28.7% for interpersonal violence (Vibhakar et al., 2019), suggesting that children and adolescent exposed to intrafamilial abuse do not reflect higher prevalence in developing PTSD and or MDD than other types of abuse or violence. This is consistent with previous studies suggesting that intrafamilial or extrafamilial abuse do not moderate the prevalence rate of developing said conditions (Bal et al., 2004). However, our findings should be interpreted with caution due to the high heterogeneity.

Although this review does not allow for a direct comparison with previous meta-analyses of youth exposed to interpersonal trauma, the pooled prevalence estimate for intrafamilial abuse appears lower, which may reflect differences in study context. For instance, both Alisic's and Visser's meta-analyses included youths exposed to war and other forms of mass violence, settings in which adolescents frequently show high rates of PTSD, with estimates in the range of 29.4% (95% CI 0.18, 0.43)(Zasiekina et al., 2025) to 47% (95% CI 0.35, 0.60) (Attanayake et al., 2009). It is also possible that the relatively small number of studies (k=3) in our review focused specifically on sexual abuse, despite evidence that lifetime PTSD prevalence is particularly elevated among those who have been sexually assaulted (50–

74.1%)(Giaconia et al., 1995; Lewis et al., 2019), may have contributed to the lower pooled prevalence observed here.

Moderator analyses showed no evidence that PTSD prevalence differed by type of measurement, type of abuse, or study quality, so these factors did not explain the heterogeneity observed in RQ1. Compared with studies by Alisic et al. (2014) and Visser et al. (2025), which relied exclusively on diagnostic interviews, our review included both self-report and interview measures, which may partly account for the higher prevalence estimate. However, our moderation analysis found no significant effect of measurement type, indicating that this discrepancy may also reflect limited statistical power due to our relatively small sample size.

In this study, the non-significant finding for assessment type when considering PTSD prevalence contrasts with previous work indicating higher prevalence rates when using self-report measures rather than interviews (Rosencrans et al., 2024; Stevens et al., 2013). One possible explanation is that this pattern may be specific to our population: children and adolescents exposed to intrafamilial abuse may under-report symptoms on self-report questionnaires. Grant and colleagues observed in clinical setting that children may disengage or “shut down” when repeatedly completing trauma measures (Grant et al., 2020). Therefore, a comprehensive assessment strategy that uses multiple informants and multiple methods is recommended to obtain richer information and to allow in-the-moment clarification of issues such as concentration, irritability, and symptom meaning (Grant et al., 2020).

Second, we observed no significant difference in the prevalence rate of PTSD between abuse types (direct vs indirect, physical abuse vs other abuse). Although not particularly about intrafamilial abuse, this differs from a longitudinal epidemiological study showing markedly

higher prevalence of PTSD for those with direct exposure to interpersonal threat (57.2%) than indirect threat such as witnessing violence (15%)(Lewis et al., 2019). Lewis and colleagues (2019)'s study also showed a higher portion developed PTSD (61%) after being physically assaulted compared to our estimate (15.7%). Our meta-analysis found a higher incidence of PTSD following direct exposure (21.5%) than indirect exposure (16.8%), suggesting that a larger sample might detect a statistically significant difference between these exposure types.

The 20.1% prevalence for MDD in children and adolescents exposed to intrafamilial abuse observed in our meta-analysis is lower than the 28.7% reported in Vibhakar (2019)'s study for interpersonal violence (Vibhakar et al., 2019). However, our estimate still far exceeds both global prevalence of depression (2.6%)(Mojtabai et al., 2016) and that from a US community sample (11.3%)(Polanczyk et al., 2015). Owing to the limited studies that met the inclusion criteria, further moderation or sensitivity analysis were not feasible. The higher prevalence of depression among children and adolescents directly exposed to intrafamilial abuse, compared with those indirectly exposed, aligns with Stangeland and colleagues' (2024) findings. They reported that the risk of MDD is greatest following sexual abuse, followed by physical violence, and is lowest after witnessing violence (Stangeland et al., 2024). Overall, these findings underscore intrafamilial abuse as a particularly potent risk context for MDD in young people and highlight the need for more rigorous, targeted research in this area.

Limitations

The substantial heterogeneity observed across studies in our meta-analyses raises concerns about the generalisability of the results. This variability is likely to reflect differences in study design, sample characteristics, type of trauma exposure, and measurement modality. In

addition, the small number of studies available for moderation analysis reduced statistical power and the strength of the inferences that can be made. Most of the included studies were conducted in high-income countries, a pattern commonly seen in research (Shorey et al., 2022), and predominantly used community samples. These characteristics limit the extent to which the findings can be generalised to global prevalence patterns. Studies included primarily used DSM-based diagnostic criteria, with very limited use of ICD, which constrains our ability to compare prevalence estimates across the two systems. Evidence in adult samples suggests that DSM-5 criteria may yield similar or slightly lower PTSD rates than DSM-IV (Elhai et al., 2012), and because ICD criteria are often viewed as more child-focused, the underrepresentation of ICD-based diagnoses is an important limitation and potential source of unexamined variability in our findings. A further difficulty in examining gender as a moderator was the frequent absence of information on how many males and females developed each disorder, which constrained the scope for exploring gender-specific risk. In addition, many studies provided insufficient detail about the nature of trauma exposure, particularly whether it involved domestic violence or intrafamilial abuse, limiting understanding of the specific interpersonal context in which symptoms emerged. Despite evidence that sexual abuse is associated with higher PTSD prevalence than other trauma types(Giaconia et al., 1995), the lack of detailed trauma information in the included studies meant we could not appropriately examine this in our analyses. Future prevalence research should aim to recruit more diverse samples, report gender-stratified outcomes, use both DSM and ICD diagnostic frameworks where possible, and describe trauma exposure with greater precision.

Clinical implications

Intrafamilial abuse is frequently conceptualised as one of the most severe forms of trauma exposure, yet the comparatively lower prevalence rates of PTSD and MDD in our meta-analysis compared to previous studies observed in trauma-exposed youth indicate that its prevalence on these disorders may not be as elevated as previously expected. The challenge of identifying studies focused specifically on intrafamilial abuse in children and adolescents has important research and clinical implications. The limited number of studies meant that moderator analyses were not feasible, underscoring the need for more primary research on PTSD and MDD in this population so that future reviews can explore sources of heterogeneity in prevalence estimates.

Moreover, children exposed to intrafamilial abuse may be underrepresented in the literature (Patyi & Mydlíková, 2025). Research suggests that victims of intrafamilial childhood sexual abuse delay disclosure longer than extrafamilial abuse (Goodman-Brown et al., 2003; Smith et al., 2000). Earlier age at onset of abuse has also been linked to longer delays in disclosure (Sas et al., 1995; Smith et al., 2000) and to a reduced likelihood of disclosing abuse during interviews when they come to the attention of authorities for treatment, assessment, or investigation (Lippert et al., 2009). In addition, the relational complexity and role conflicts inherent in intrafamilial abuse often foster profound shame, which can inhibit disclosure, reduce therapeutic engagement, and undermine the effectiveness of psychotherapy (McElvaney et al., 2022). Our meta-analysis suggests despite intrafamilial abuse compared to previous studies did not show higher clinical risk of development of PTSD/ MDD, children and adolescents exposed to intrafamilial population are likely under-detected because of delay disclosure and may not report fully in assessment. Intrafamilial abuse underlines the need for proactive, trauma-informed screening that does not rely solely on child self-report and uses multi-informant, multi-method approaches. Particular attention should be given to

younger children and those with suspected intrafamilial abuse to avoid missing significant mental health problems and to increase opportunities for earlier intervention. It is important to understand how some children and adolescents did not develop PTSD or MDD in the face of such trauma exposure. Such work might consider whether some intrafamilial abuse is of a less threatening nature than others (e.g. is inter-sibling fighting being reported rather than parental violence), and the effect of protective mechanisms such as social support.

Conclusion

Although intrafamilial abuse is often regarded as a particularly severe trauma context, this meta-analysis suggests that PTSD and MDD are not inevitable outcomes, and that their prevalence is lower than in broader samples of youth exposed to interpersonal trauma. The substantial heterogeneity observed across studies in our meta-analyses suggests that the generalisability of the results should be interpreted with some caution. Moderator analyses showed no significant differences by measurement method, abuse type, or study quality, indicating that elevated disorder rates in this group are relatively consistent across methods and contexts. Children and adolescents exposed to intrafamilial abuse may still face increased risk because the abuse occurs within close caregiving relationships and is often accompanied by profound shame and delayed disclosure, which can interfere with emotion regulation and help-seeking. This calls for a need for more high-quality studies using robust assessment methods, and for clinical services to systematically screen for exposure of intrafamilial abuse in children and adolescents.

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Chapter 2.

Bridging Chapter:

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Chapter 2: Bridging chapter

Our systematic review and meta-analysis demonstrated that intrafamilial abuse and maltreatment are associated with notable rates of PTSD and depression in young people. These rates are higher than global estimates for non-trauma-exposed youth, underscoring the clinical significance of interpersonal trauma. It also identified considerable heterogeneity in prevalence estimates across studies and limited information about how specific trauma characteristics and comorbid conditions might account for this variation. These findings underlined the need to move beyond documenting prevalence towards understanding which young people are most at risk of poorer outcomes and how clinical services can best support them.

One important gap concerned treatment response. While the review quantified how common PTSD and depression are after intrafamilial trauma exposure, it provided little evidence on whether trauma type (e.g. intrafamilial vs extrafamilial abuse, number of trauma exposure) and internalising symptoms (e.g. depression, anxiety) influence how young people respond to therapy. The empirical study was therefore designed to address this gap.

The NICE guideline recommends trauma-focused cognitive behavioural therapy (TF-CBT) for trauma-exposed children and adolescents and highlight the need to understand which factors may affect treatment outcomes(NICE, 2018), further underscoring the rationale for this investigation. The empirical study then extends this work by examining how specific trauma characteristics and comorbid difficulties, highlighted in the literature as key correlates of psychopathology, influence young people's trajectories of treatment response.

Existing TF-CBT research with young people has largely examined the linear effects of single factors and offers only limited evidence on a narrow set of moderators such as age, gender, domicile, and ethnicity(Danzi & La Greca, 2021). Much less is known about how a

broader range of individual characteristics, trauma profiles, and co-occurring symptoms, particularly in youth exposed to multiple traumas, jointly shape treatment response. Taken together, the portfolio therefore follows a coherent pathway from exposure and prevalence, through risk profiles, to clinical outcomes, linking epidemiological evidence with applied implications for assessment and intervention.

Chapter 3.

Empirical paper

prepared for submission to: Journal of Child Psychology and Psychiatry Advances

Author Guidelines available in Appendix D.

The research reported is original work which was carried out under the supervision of Richard Meiser-Stedman (Primary Supervisor) and Kenny Chiu (Secondary Supervisor). I am the lead author of this paper which is prepared for journal submission.

Predicting Treatment Response in children and adolescents with Post-traumatic stress Disorder: The Moderating Role of Demographics, Trauma Types and Comorbidities

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Abstract

Background: Traumatic experiences involving threatened death, serious injury, or sexual violence place children and adolescents at high risk of post-traumatic stress disorder (PTSD). Although trauma-focused cognitive behavioural therapies (TF-CBT) are effective, much less is known about how individual characteristics, trauma profiles, and comorbid symptoms shape treatment response, particularly for youth exposed to multiple traumatic events.

Methods: This exploratory secondary analysis used data from the DECRYPT Phase II randomised controlled trial, in which 120 youth with DSM-5 PTSD were allocated to one form of TF-CBT (cognitive therapy for PTSD [CT-PTSD]) or treatment as usual. Self-report and caregiver-report measures assessed PTSD severity, trauma history, dissociation, voice hearing, disturbances of self-organisation, borderline personality disorder symptoms, depression, anxiety, and panic. Linear regression models examined whether baseline demographics, trauma characteristics, and comorbid symptoms predicted post-traumatic stress symptoms (PTSS) at 11-month follow-up and moderated the association between baseline symptoms, treatment arm, and outcomes.

Results: Higher baseline dissociation significantly moderated the interaction between baseline and 11-month PTSS ($B = 0.152$, $SE = 0.074$, $p = 0.038$). After accounting for treatment arm, intrafamilial abuse moderated treatment effects such that CT-PTSD was more beneficial than TAU ($B = -12.508$, $SE = 5.508$, $p = 0.023$). Other potential moderators were non-significant.

Conclusions : Our findings suggest that CT-PTSD is beneficial for children and adolescents exposed to multiple traumas, with limited evidence that treatment effects depend on demographics, trauma characteristics, or comorbidity. Notably, applying any correction for

multiple comparisons would make the moderator effects identified here non-significant, so these conclusions should be interpreted cautiously given the modest sample size and limited power to detect moderation effects.

Keywords: Stress Disorders, Post-Traumatic, Comorbidity, Cognitive Therapy, Adolescent

Introduction

Traumatic experiences that involve threatened death, serious injury, or sexual violence pose substantial challenges for clinical services and public health systems, particularly among young people (American Psychiatric Association, 2013). Young people are often more susceptible to stressors due to their ongoing neurobiological, emotional, and social development (Lupien et al., 2009). The clinical presentation of post-traumatic stress disorder (PTSD) is particularly severe in young individuals who have experienced multiple traumatic stressors, such as physical or sexual abuse, witnessing domestic violence, war, or community violence (Holt et al., 2007; Suliman et al., 2009). Compared with youth exposed to a single traumatic event, those who experienced multiple traumatic stressors were more likely to develop a range of emotional disorders, struggle in education, work, and relationships, rely more on mental health services, and experience poorer physical health (Hughes et al., 2017; Tong et al., 2024). With a more complex clinical presentation, it posits the question of whether trauma-focused treatments are equally efficacious to young people who experienced single-event and multiple-event stressors. Cognitive Therapy for Post-Traumatic Stress Disorder (CT-PTSD) is one form of trauma-focused cognitive behavioural therapy (TF-CBT), the primary treatment recommended by NICE guidelines for children and adolescents with PTSD (NICE, 2018). CT-PTSD incorporates theoretically-driven techniques including cognitive reappraisal, trauma memory analysis and adaptive coping management (Ehlers et al., 2014). Existing literature has found some support for the effectiveness of CT-PTSD for children and youth with single-event trauma (Meiser-Stedman et al., 2017; Nixon & Nearmy, 2011; Smith et al., 2007), as well as that with multiple-event trauma with waitlist or no treatment controls (Hoppen et al., 2023).

There is substantial evidence that CBT, particularly CT-PTSD/TF-CBT, is effective for treating PTSD in young people. A therapy process model for youth psychotherapy proposes that a child's individual characteristics shape both the process of change and treatment outcomes (Fjermestad et al., 2016). This theoretical perspective is supported by Lenz and Hollenbaugh's (2015) meta-analysis of TF-CBT for PTSD and co-occurring depression in children and adolescents, which indicates that child-related factors such as age, ethnicity and trauma type may predict treatment response. Their findings suggest that children and adolescents can benefit from CT-PTSD across different trauma types and in the presence of comorbid depression. However, Lenz (2015)'s study only included interpersonal trauma types in their sample, which limit the generalisation of the potential differentiated treatment response between other trauma types.

Further evidence comes from Macdonald et al. (2012), whose meta-analysis of 10 randomised controlled trials (RCTs) found small to moderate effect of CBT over unstructured supportive psychotherapy for PTSD, depression and anxiety symptoms in young people (Macdonald et al., 2012). Jensen et al. (2022) also reported that TF-CBT was effective in reducing depressive, anxiety and disturbances in self-organisation (DSO) symptoms (core features of complex PTSD) in youth exposed to multiple traumas (Jensen et al., 2022). However, other studies highlight potential limits to treatment response: for example, Goldbeck et al. (2016) observed less improvement in trauma symptoms among young people with higher levels of comorbidity (Goldbeck et al., 2016).

PTSD is a heterogeneous condition, with wide variation in symptom profiles, high rates of comorbidity, and frequent overlap with other traits and disorders. Dissociative symptoms and co-occurring depression are particularly common, and both have been identified as important predictors of post-traumatic stress symptoms (Meiser-Stedman et al., 2025; Memarzia et al.,

2024; White et al., 2022). Therefore, it is important understand the broad presentation of PTSD by examining different types of trauma and comorbid psychopathology.

In consideration of the complex nature of PTSD, particularly with the experience of multiple trauma and managing co-morbid conditions, exploring the linear effect of individual factors might limit the understanding of how their interactions influence treatment effectiveness. Although prior CT-PTSD research has largely relied on linear mixed models to estimate overall treatment effects while accounting for the nested data structure, such analyses rarely examine whether treatment effectiveness differs across individual characteristics. The literature on treatment moderators for youth PTSD has been described as limited, with a focus on characteristics such as age, gender, domicile, and ethnicity (Taylor et al., 2015). Danzi and La Greca (2021) reviewed six meta-analyses and systematic reviews and found that treatment tends to be more effective for older youth, while evidence for gender and domicile as moderators is inconclusive and ethnicity has not emerged as a significant factor(Danzi & La Greca, 2021). However, to the best of this author's knowledge, no studies have explored how a broader range of factors moderate treatment response. Thus, the impact of individual demographics, trauma characteristic and co-occurring symptoms on response to trauma treatment is not fully understood, with a notable scarcity of research focused on traumatised youth with the experience of multiple trauma.

This exploratory study aimed to examine how baseline demographics (age, gender and ethnicity), trauma characteristics (type of trauma, sexual vs non-sexual trauma, intrafamilial vs extrafamilial trauma), and different comorbid psychopathology (borderline personality disorder symptoms, voice hearing, dissociation, DSO, depression, anxiety and panic symptoms) in young people predict post-traumatic stress symptom (PTSS) severity at 11 months follow-up. The second objective was to explore if the above demographic, trauma

characteristics and comorbid factors moderate the relationship between baseline trauma severity, treatment arm and treatment outcomes at 11 months follow-up.

Method

Study context (DECRYPT)

In DECRYPT, recruitment commenced on 1 February 2017 in NHS CAMHS and youth mental health services in England and Wales, where clinicians identified potentially eligible 8–17-year-olds with PTSD following multiple traumas and referred them to the trial team for screening and consent. Following baseline assessment to confirm eligibility, participants were randomised 1:1 to CT-PTSD or TAU; CT-PTSD was delivered as 10–15 individual weekly sessions (60–90 minutes) by trained NHS therapists, while TAU consisted of active routine care (for example, supportive counselling, family work or medication) provided by usual clinicians. Recruitment continued until June 2021, with 11-month follow-up assessments completed by May 2022. Of the 120 participants randomised (58 to CT-PTSD, 62 to TAU), eight withdrew between baseline and 11-month follow-up (six before post-treatment and further two before 11 months), yielding an overall attrition rate of approximately 7%, while the planned follow-up target (N = 96) was achieved for the primary outcome at post-treatment.

Design

This study was a secondary analysis of the data from the DECRYPT (Delivery of Cognitive therapy for Young People after Trauma) Phase II two-arm, single-blind, patient-level randomised controlled trial (Allen et al., 2021). Self-report and caregiver-report interviews and questionnaires were utilised to evaluate the relationship between PTSS at posttreatment and 11 months post-randomisation and, i) demographics, such as age, gender and ethnicity;

ii) traumas characteristics, including number of trauma types, sexual trauma and intrafamilial abuse; and iii) comorbidity measures related to borderline personality disorder (BPD) symptoms, DSO, dissociation, depression, anxiety, panic and voice hearing. The exploratory hypotheses were preregistered on the Open Science Framework (https://osf.io/m9d7a).

Ethical Considerations

The DECRYPT trial protocol was registered on 24th October 2016 (trial registration ISRCTN12077707, http://www.isrctn.com/ISRCTN12077707), approved by a UK Health Research Authority Research Ethics Committee (East of England–Cambridge South, 16/EE/0233) (Appendix E-G). Informed consent was sorted by caregivers for participants under 16.

Participants

One-hundred and twenty youths were randomised to either CT-PTSD (N=58) or treatment as usual (TAU) (N=62). The sample size was established based on a power calculation for the primary outcome of the DECRYPT trial. Inclusion criteria included participants aged 8-17 who met the diagnostic criteria for PTSD (DSM-5 and diagnosed with the CPSS-5-I, Child PTSD Symptom Scale – Interview version, Foa et al. (2018)) and scored 17 or above on the Child Revised Impact of Events Scale-8 (CRIES-8; (Perrin et al., 2005) with the exposure to multiple traumatic stressors.

Exclusion criteria were a change in prescribed psychiatric medication within the prior two months, a pervasive developmental disorder or neurodevelopmental disorder (e.g., autism, but not attention deficit hyperactivity disorder, intellectual disability, another primary psychiatric diagnosis or clinical need that requires treatment priority over PTSD (e.g., psychosis, suicidal behaviour, conduct disorder), inability to speak English, ongoing exposure

to threat (e.g., living with an abuser, regularly placing oneself in danger) or safeguarding issues, a strong likelihood of being unable to complete the treatment (e.g., imminent house or foster placement move) or a history of organic brain damage. The data collected comprised self-report and parent/caregiver-report questionnaires and interviews, with further details available in the published DECRYPT protocol (Allen et al., 2021).

Measures

PTSD severity

The primary outcome measure for the trial was the Child Revised Impact of Events Scale- 8 item (Appendix H, CRIES-8; (Perrin et al., 2005), a self-report measure of PTSD severity for children and young people aged eight to 18. The score ranges from zero to 40, with a cut-off score of 17 or higher indicating greater risk for PTSD. The measure has good internal consistencies .75–.84 (Dyregrov et al., 1996) and test retest reliability (r = .75) (Verlinden et al., 2014) and validity (Perrin et al., 2005).

Trauma Type, dissociation, voice hearing, disturbances of self-organisation (DSO)

The Child and Adolescent Trauma Screen (CATS; (Sachser et al., 2017) is a 20-item self-report measure to identify types of trauma experienced by participants. It has an excellent reliability with α ranging between .73 and .94 and good convergent validity (Nilsson et al., 2021; Sachser et al., 2017). Additional items including the experience of dissociation, voice hearing (from Unusual experience measure, Anilmis et al., 2015) and DSO symptoms were assessed in the assessment interview. The dissociation screen is a two-item self-report interview that evaluates the frequency of depersonalisation (“Have you felt as if you were outside your body?”) and derealisation (“Have you felt as if things around you weren't real?”). Responses were measured on a 5-point Likert scale ranging from “Not at all” to “Six

or more times a week/almost always." The three DSO symptoms listed in ICD-11 include affective dysregulation, negative self-concept, and difficulties in sustaining relationships. A 5-point Likert-type scale from zero ('Not at all') to four ('Six or more times a week/almost always'), with scores more than zero endorsed as a symptom (Hiller et al., 2021; Lofthouse et al., 2023).

BPD symptoms

The McLean Screening Instrument for Borderline Personality Disorder - Carers version is a 10-item a carer-report measure to assess BPD symptoms of participants (Appendix I, MSI-BPD-C; (Zanarini et al., 2003). With a score from zero to 10, cut-off of score of seven or above for further BPD assessment, satisfactory reliability (α=0.78) and validity (McKay et al., 2022; Zanarini et al., 2003; Zimmerman et al., 2013).

Anxiety, depression and panic symptoms

Anxiety, depression and panic severity were assessed using the Revised Child Anxiety and Depression Scale (RCADS), a 47-item self-report questionnaire with good internal consistency (α=0.78-0.96) and convergent and divergent validity (Baron et al., 2021; Chorpita et al., 2005).

Analysis

This secondary analysis of the DECRYPT dataset was conducted in an exploratory manner. CRIES-8 data was available for 96 (80%) at post-treatment and 81 (68%) at 11 month follow up (the primary outcome for the present study). Following previous finding of the superior effect of CT-PTSD over TAU at 11 months, the primary outcome in this study was established at 11 months to assess the long-term effects of the treatment, providing more meaningful results (Meiser-Stedman et al., 2025). The posttreatment CRIES-8 would be

utilised as a sensitivity analysis. A post hoc power calculation was conducted using the G*Power calculator version 3.1.9.7 as this is a secondary data analysis (Faul et al., 2009). Small correlations could be detected (r=0.25) with 80% power and a significance criterion of 0.05 in the correlational analyses.

Data were assessed for assumptions of normality, skewness and kurtosis. The normality of the score distribution on each measure was assessed using the Kolmogorov–Smirnov Test using IBM SPSS Statistics Version 28 (IBM Corp., 2021). The regression residuals met the normality assumptions. The linear regression models run to test moderation effects were conducted using the R studio (version 4.0.2) with the lavaan (Rosseel, 2012) package. The treatment condition variable (CT-PTSD vs TAU), gender (male vs no), ethnicity (White British vs no), sexual trauma (yes vs no), intrafamilial trauma (yes vs no), and voice hearing (yes vs no) were dummy-coded. The conventional $p<.05$ alpha value was used for all analyses. Full information maximum likelihood estimation was used to manage missing data. Data were reported for main effects on their own (Model 1), and when including the interaction term (Model 2).

Results

Baseline predictors of treatment outcomes

Descriptive variables were presented in Table 5. At baseline, several variables were correlated with CRIES-8 PTSS severity, including baseline voice hearing (small effect), age, generalised anxiety symptoms (medium effect), DSO, dissociation, depression and panic symptoms (large effect). A similar effect was found for CRIES-8 at posttreatment with dissociation, generalised anxiety, panic symptoms (small effect), sex at birth, DSO and depression (medium effect). At 11 months, variables that were correlated with CRIES-8

severity were ethnicity, intrafamilial abuse, dissociation, panic, voice hearing (small effect), sex at birth, DSO and depression (medium effect).

Table 5. Correlations between baseline variables and PTSS at post-treatment and 11 month follow up

	M(SD) at baseline	CRIES-8 at baseline	CRIES-8 at post	CRIES-8 at 11m
Demographic				
Age	14.92 (2.50)	.323**	.188	.137
Male sex (at birth), n (%)	33 (27.50)	-.130	-.304**	-.324**
White British, n (%)	91 (75.80)	.123	.030	.233*
Trauma history				
Number of trauma types	4.67 (2.17)	-.008	-.065	.174
Sexual trauma, n (%)	49 (40.80)	.068	.017	.100
Intrafamilial trauma, n (%)	90 (75.00)	-.093	.169	.290**
Comorbidity				
CRIES-8	31.57 (5.99)	N/A	.346**	.515**
BPD	6.26 (2.44)	.061	.044	.068
DSO	23.83 (7.80)	.505**	.449**	.391**
Dissociation	6.87 (2.50)	.503**	.280**	.297**
Depression	19.50 (6.24)	.537**	.317**	.347**
Anxiety	11.98 (3.93)	.439**	.276**	.217
Panic	14.40 (7.12)	.523**	.293**	.260*
Voice hearing, n (%)	50 (41.70)	.183*	.170	.238*

Notes: n=number, *indicates significant at p<.05; **indicates significant at p<.01; CRIES-8= Child Revised Impact of Events Scale - 8 item; BPD=borderline personality disorder symptoms; DSO= disturbances of self-organisation

11 months follow up moderation analyses

First, we considered which factors might moderate the relationship between baseline PTSS and 11m PTSS (as measured by the CRIES-8). Baseline CRIES-8 severity was a consistent

predictor in each model. After accounting for the effect of baseline CRIES-8, sex and intrafamilial trauma accounted for variability in CRIES-8 at 11months (see Table 6). The only positive interaction effect was found between dissociation and CRIES-8 baseline, B=0.152,SE=0.074, β=1.375, t(77)=2.076, p=0.038 (see Figure 5 for plot based on dichotomous coding of baseline scores).

Table 6. Moderators of the relationship between baseline PTSS and PTSS at 11 months

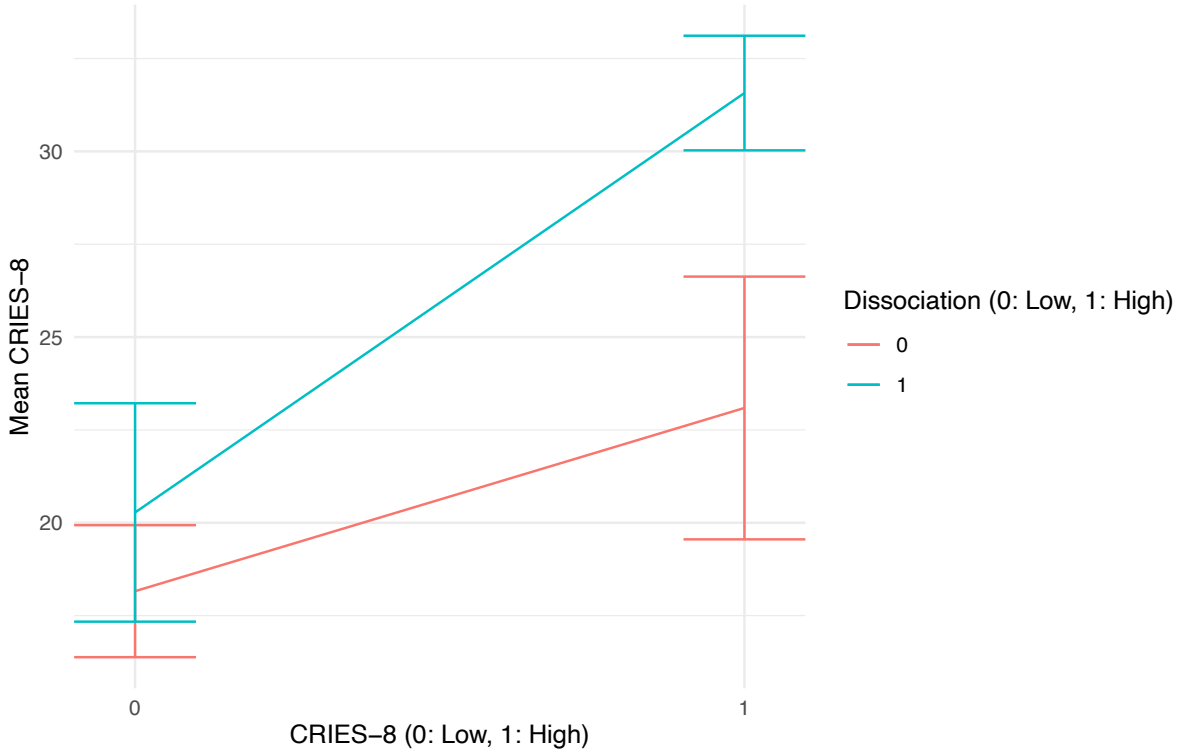
Moderator Variable	Model	IVs	B	SE	β	*t*	*Main effect p*	*Interaction p*
Demographic variables								
Age	1	Age	-0.443	0.503	-0.096	-0.880	0.379	
		CRIES-8, base	1.019	0.185	0.530	5.509	0.000	
	2	Age	-1.954	2.994	-0.428	-0.653	0.514	
		CRIES-8, base	0.293	1.429	0.154	0.205	0.838	
		Interaction	0.047	0.092	0.553	0.512		0.609
Male sex	1	Male sex	-6.339	2.502	-0.245	-2.534	0.011	
		CRIES-8, base	0.907	0.181	0.469	5.023	0.000	
	2	Male sex	-14.217	11.582	-0.550	-1.227	0.220	
		CRIES-8, base	0.811	0.227	0.418	3.570	0.000	
		Interaction	0.260	0.373	0.312	0.697		0.486
Ethnicity	1	White British	4.180	2.769	0.156	1.509	0.131	
		CRIES-8, base	0.945	0.185	0.490	5.122	0.000	
	2	White British	7.780	12.768	0.290	0.609	0.542	
		CRIES-8, base	1.033	0.356	0.537	2.899	0.004	
		Interaction	-0.120	0.417	-0.153	-0.289		0.773
Trauma history variables								
Trauma types	1	Trauma types	0.652	0.448	0.123	1.454	0.146	
		CRIES-8, base	0.990	0.182	0.514	5.449	0.000	
	2	Trauma types	-2.761	2.547	-0.522	-1.084	0.278	
		CRIES-8, base	0.467	0.424	0.243	1.099	0.272	

		Interaction	0.105	0.077	0.702	1.361		0.173
Sexual trauma	1	Sexual trauma	0.086	2.234	0.004	0.038	0.969	
		CRIES-8, base	0.995	0.186	0.514	5.356	0.000	
	2	Sexual trauma	-14.144	11.871	-0.606	-1.192	0.233	
		CRIES-8, base	0.790	0.249	0.410	3.165	0.002	
		Interaction	0.451	0.370	0.635	1.220		0.222
Intrafam.ab[1]	1	Intrafam.ab	8.230	2.431	0.313	3.385	0.001	
		CRIES-8, base	1.024	0.172	0.536	5.938	0.000	
	2	Intrafam.ab	-8.325	16.794	-0.315	-0.496	0.620	
		CRIES-8, base	0.567	0.489	0.296	1.159	0.246	
		Interaction	0.520	0.522	0.662	0.996		0.319
Comorbidity								
BPD	1	BPD	0.141	0.553	0.031	0.256	0.798	
		CRIES-8, base	0.860	0.216	0.462	3.987	0.000	
	2	BPD	-2.854	2.873	-.623	-0.993	0.321	
		CRIES-8, base	0.241	0.621	0.129	0.388	0.698	
		Interaction	0.102	0.096	0.783	1.062		0.288
DSO	1	DSO	0.319	0.175	0.215	1.818	0.069	
		CRIES-8, base	0.760	0.222	0.392	3.424	0.001	
	2	DSO	0.284	0.802	0.191	0.353	0.724	
		CRIES-8, base	0.738	0.539	0.381	1.371	0.170	
		Interaction	0.001	0.024	0.031	0.045		0.964
Dissociation	1	Dissociation	0.323	0.471	0.070	0.685	0.493	
		CRIES-8, base	0.930	0.207	0.481	4.494	0.000	
	2	Dissociation	-4.559	2.396	-0.981	-1.903	0.057	
		CRIES-8, base	-0.009	0.495	-0.004	-0.017	0.986	
		Interaction	0.152	0.074	1.375	2.076		0.038
Depression	1	Depression	0.124	0.216	0.067	0.574	0.566	
		CRIES-8, base	0.931	0.216	0.480	4.304	0.000	
	2	Depression	-0.771	1.098	-0.415	-0.703	0.482	
		CRIES-8, base	0.428	0.641	0.221	0.668	0.504	

		Interaction	0.028	0.034	0.659	0.832		0.406
Anxiety	1	Anxiety	-0.050	0.390	-0.017	-0.163	0.871	
		CRIES-8, base	1.011	0.207	0.522	4.896	0.000	
	2	Anxiety	0.141	1.514	0.048	0.093	0.926	
		CRIES-8, base	1.080	0.570	0.558	1.895	0.058	
		Interaction	-0.006	0.048	-0.087	-0.129		0.898
Panic	1	Panic	-0.067	0.189	-0.041	-0.354	0.723	
		CRIES-8, base	1.040	0.222	0.537	4.677	0.000	
	2	Panic	-0.681	0.923	-0.417	-0.738	-.460	
		CRIES-8, base	0.793	0.426	0.408	1.861	0.063	
		Interaction	0.020	0.029	0.463	0.680		0.496
Voice hearing	1	Voice hearing	2.909	2.268	0.125	1.283	0.200	
		CRIES-8, base	0.940	0.187	0.487	5.015	0.000	
	2	Voice hearing	13/336	13.604	0.572	0.980	0.327	
		CRIES-8, base	1.030	0.220	0.535	4.684	0.000	
		Interaction	-0.323	0.416	-0.466	-0.777		0.437

[1]Intrafamilial abuse, PTSS=post-traumatic stress symptoms; IVs= independent variables; CRIES-8= Child Revised Impact of Events Scale - 8 item; BPD=borderline personality disorder symptoms; DSO= disturbances of self-organisation symptoms

Figure 5. Moderating effects of dissociation on CRIES-8 scores at baseline to 11 months



Next, we considered which factors might moderate the relationship between treatment arm and 11m PTSS. Treatment arm (CT-PTSD vs TAU) was a broadly consistent predictor of CRIES-8 at 11 months in model 1, see Table 7. A main effect was found for sex, ethnicity, intrafamilial abuse, DSO, dissociation, depression, generalised anxiety, panic and voice hearing, i.e. these factors predicted CRIES-8 at 11 months independent of the effect of arm. The only interaction effect observed was intrafamilial abuse, where children who experienced intrafamilial abuse had a better outcome with CT-PTSD (B=-12.508, SE=5.508, β=-0.518, t(77)=-2.271, p=0.023), see Figure 6.

Table 7. Moderators of the relationship between treatment arm and PTSS at 11 months

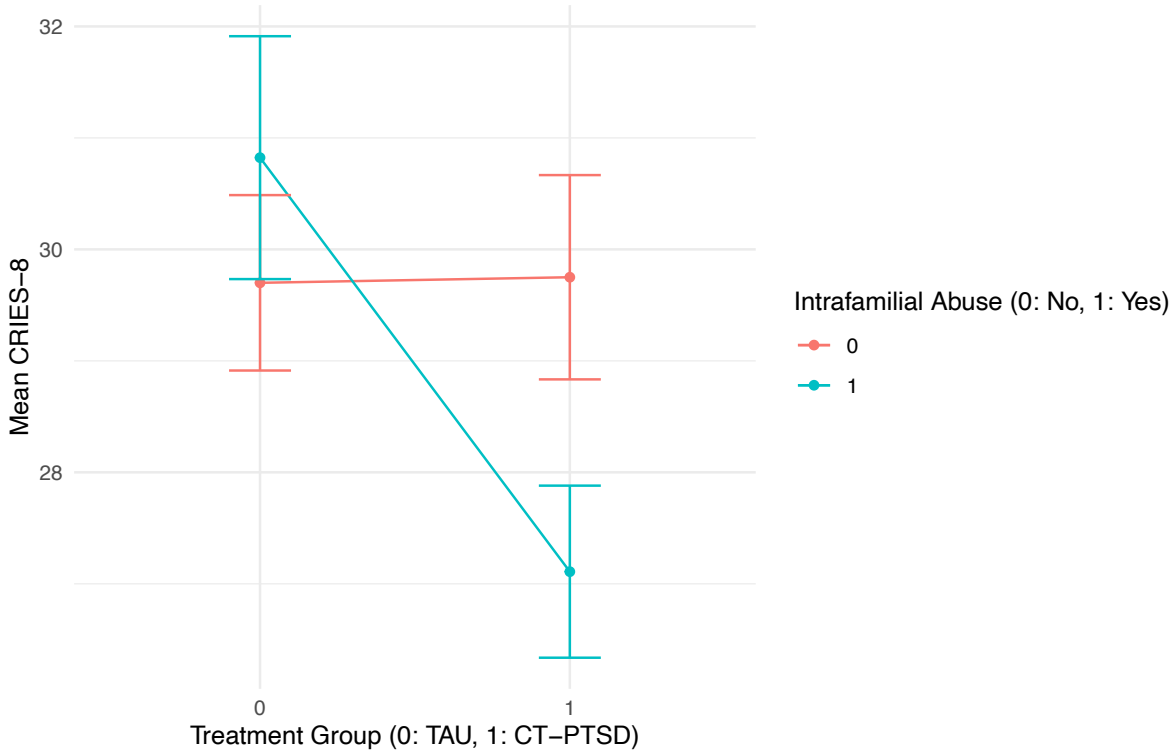
Moderator Variable	Model	IVs	B	SE	beta	*t*	*p*	*p*
Demographic variables								
Age	1	Age	0.207	0.581	0.045	0.357	0.721	
		Arm	-5.516	2.555	-0.239	-2.159	0.031	
	2	Age	-0.251	0.662	-0.053	-0.380	0.704	
		Arm	-34.100	20.724	-1.456	-1.645	0.100	
		Interaction	1.845	1.328	1.234	1.390		0.165
Male sex	1	Male sex	-9.813	2.711	-0.380	-3.619	0.000	
		Arm	-6.486	2.343	-0.281	-2.768	0.006	
	2	Male sex	-12.074	3.438	-0.468	-3.512	0.000	
		Arm	-7.831	2.651	-0.339	-2.964	0.003	
		Interaction	5.853	5.530	0.147	1.058		0.290
Ethnicity	1	White British	6.568	3.051	0.243	2.153	0.031	
		Arm	-5.166	2.434	-0.223	-2.122	0.034	
	2	White British	5.364	4.278	0.198	1.254	0.210	
		Arm	-7.125	5.458	-0.307	-1.305	0.192	
		Interaction	2.444	6.097	0.102	0.401		0.689
Trauma history variables								
Trauma types	1	Trauma types	0.576	0.516	0.108	1.115	0.265	
		Arm	-4.966	2.504	-0.215	-1.983	0.047	
	2	Trauma types	0.500	0.689	0.094	0.726	0.468	
		Arm	-5.806	5.658	-0.252	-1.026	0.305	
		Interaction	0.172	1.040	0.039	0.166		0.868
Sexual trauma	1	Sexual trauma	2.327	2.513	0.099	0.926	0.354	
		Arm	-5.570	2.502	-0.241	-2.226	0.026	
	2	Sexual trauma	-1.749	3.424	-0.074	-0.511	0.610	
		Arm	-9.387	3.313	-0.405	-2.833	0.005	
		Interaction	8.286	4.941	0.306	1.717		0.086

Intrafam.ab[1]	1	Intrafam. ab.	7.902	2.817	0.293	2.805	0.005	
		Arm	-5.685	2.392	-0.244	-2.377	0.017	
	2	Intrafam. ab.	13.349	3.635	0.502	3.672	0.000	
		Arm	3.943	4.833	0.171	0.816	0.415	
		Interaction	-12.508	5.508	-0.518	-2.271		0.023
Comorbidity								
BPD	1	BPD	0.454	0.574	0.100	0.790	0.430	
		Arm	-8.064	2.609	-0.365	-3.091	0.002	
	2	BPD	1.016	0.700	0.223	1.451	0.147	
		Arm	2.116	7.892	0.096	0.268	0.789	
		Interaction	-1.623	1.1990	-0.521	-1.364		0.172
DSO	1	DSO	0.641	0.150	0429	4.289	0.000	
		Arm	-5.713	2.260	-0.246	-2.528	0.011	
	2	DSO	0.645	0.208	0.431	3.099	0.002	
		Arm	-5.550	7.492	-0.239	-0.741	0.459	
		Interaction	-0.007	0.299	-0.008	-0.023		0.982
Dissociation	1	Dissociation	1.317	0.453	0.284	2.909	0.004	
		Arm	-5.413	2.380	-0.235	-2.274	0.023	
	2	Dissociation	0.962	0.638	1.208	1.509	0.131	
		Arm	-10.187	6.516	-0.443	-1.563	0.118	
		Interaction	0.709	0.902	0.237	0.787		0.432
Depression	1	Depression	0.602	0.198	0.323	3.037	0.002	
		Arm	-5.091	2.371	-0.220	-2.147	0.032	
	2	Depression	0.517	0.260	0.277	1.990	0.047	
		Arm	-9.012	8.214	-0.388	-1.097	0.273	
		Interaction	0.200	0.401	0.181	0.499		0.618
Anxiety	1	Anxiety	0.620	0.305	0.210	2.030	0.042	
		Arm	-5.184	2.441	-0.225	-2.123	0.034	
	2	Anxiety	0.710	0.398	0.241	1.783	0.075	

		Arm	-2.584	7.775	-0.112	-0.332	0.740	
		Interaction	-0.218	0.620	-0.122	-0.352		0.725
Panic	1	Panic	0.490	0.171	0.300	2.872	0.004	
		Arm	-6.251	2.405	-0.270	-2.599	0.009	
	2	Panic	0.554	0.224	0.340	2.467	0.014	
		Arm	-3.991	5.708	-0.173	-0.699	0.484	
		Interaction	-0.150	0.345	-0.116	-0.436		0.663
Voice hearing	1	Voice hearing	5.098	2.478	0.219	2.058	0.040	
		Arm	-4.834	2.450	-0.210	-1.973	0.049	
	2	Voice hearing	1.559	3.297	0.067	0.473	0.636	
		Arm	-8.058	3.147	-0.349	-2.561	0.010	
		Interaction	7.822	4.902	0.272	1.596		0.111

[1]Intrafamilial abuse PTSS=post-traumatic stress symptoms; IVs= independent variables; CRIES-8= Child Revised Impact of Events Scale - 8 item; BPD=borderline personality disorder symptoms; DSO= disturbances of self-organisation symptoms

Figure 6. Moderating effects of intrafamilial abuse between treatment arm and CRIES-8 scores at 11 months



Posttreatment moderation analyses

A series of sensitivity analyses were conducted in which the above models were re-run using CRIES-8 scores at posttreatment, rather than at 11 months post-randomisation, as the dependent variable. The regression models examining the relationship between baseline CRIES-8 and posttreatment CRIES-8 showed that baseline CRIES-8 scores were a consistent predictor. After accounting the effect of baseline CRIES-8, sex and DSO accounted for variability in CRIES-8 posttreatment (See Appendix J, Table S1). Interaction effects were observed for number of trauma types, B=0.185, SE=0.081, β=1.238, t(92)=2.291, p=0.022 (Figure S1), such that a higher number of trauma-related experiences amplified the effect of number of treatment types on posttreatment PTSS. An interaction was also found for sexual trauma, B=1.278, SE=0.347, β=1.824, t(92)=3.679, p=0.000 (Figure S2), indicating that experiencing sexual trauma significantly altered posttreatment PTSS.

In linear regression models looking at which variables moderated the relationship between treatment arm and posttreatment CRIES-8, after accounting for the effect of arm, sex, DSO,

dissociation, depression, generalised anxiety, panic accounted for variability in CRIES-8 at posttreatment (Table S2). No significant interaction effect was found between predicting variables and CRIES-8 posttreatment.

Discussion

The present study is one of the first to explore the relationship between various individual factors including demographics, trauma characteristics, co-morbid conditions and posttreatment PTSD severity in a clinical sample of youth who had experienced multiple traumas and were undergoing treatment for PTSD. Correlational analyses found that voice hearing (small effect), age, generalised anxiety (medium effects), DSO, dissociation, depression and panic symptoms (large effects) were associated with PTSS at baseline; it is noteworthy that trauma variables were not significantly associated to PTSD severity at baseline. Higher baseline panic and dissociation severity predicted more severe PTSS posttreatment and at 11 months, with a small effect. In addition, sex at birth, depression and DSO severity also positively predicted PTSS at both post-treatment and 11 months, with a medium effect.

The moderation analyses demonstrated that baseline CRIES-8 severity and treatment arm were both a consistent predictor of PTSS at 11 months in their respective models, consistent with the RCT paper evaluating the efficacy of TF-CBT compared to TAU (Meiser-Stedman et al., 2025). There were several main effects found. First, only sex and intrafamilial abuse were predictors of PTSS at 11 months after accounting for baseline PTSS. Higher levels of dissociation moderated the relationship between baseline CRIES-8 scores and CRIES-8 scores at 11 months.

After accounting for treatment arm, being female, White British ethnicity, intrafamilial abuse, DSO, dissociation, depression, generalised anxiety, panic symptoms and voice hearing

predicted PTSS. In addition, a significant interaction effect indicated that children who had experienced intrafamilial abuse may benefit more from CT-PTSD treatment compared to TAU. At posttreatment, the only interaction effects were found for number of trauma types and sexual trauma when considering the effect of baseline PTSS on posttreatment PTSS. However, in most instances, there were no moderation effects found. In other words, this might indicate that treatment was beneficial regardless of demographics, trauma characteristic or comorbidity. Notably, applying any correction for multiple comparisons would make the moderator effects identified here non-significant. The results should be interpreted with caution due to the underpowered sample size.

Previous literature has established that TF-CBT has a superior treatment effect compared to passive control conditions. A meta-analysis of 51 RCTs reflected that TF-CBT was equally effective for children and adolescents with either single or multiple trauma exposures (Hoppen et al., 2023). Consistent findings indicated that TF-CBT was associated with the largest short-term reduction in PTSS relative to both passive and active control conditions, while accounting for all sensitivity analyses, as shown in a network meta-analysis of 70 RCTs (Hoppen et al., 2025). The effect was also found to produce a large effect up to 5 months following treatment, with significant effects lasting for six to 24 months compared to active control conditions (Hoppen et al., 2025).

Furthermore, the absence of interaction effects for demographic variables (age, sex at birth, ethnicity), trauma characteristics (number of trauma type) and comorbid conditions (depression, anxiety, panic, voice hearing and DSO symptoms) may suggest that these factors do not influence the strength of the relationships between the treatment type and the young people's PTSS severity. DSO may act as a vulnerability factor that contributes to PTSD and is especially prevalent among adolescents (Chiu et al., 2023; Lofthouse et al., 2023). Jensen

et al (2022)'s results showed that youth with CPTSD responded well to TF-CBT, while Lenz & Hollenbaugh (2015)'s meta-analysis provided supportive evidence of positive response to TF-CBT in youth with comorbid depression and PTSD.

According to the overmodulation model, dissociation is understood as a result of emotional overmodulation of hyperarousal and re-experiencing symptoms, serving as a core symptom of PTSD (American Psychiatric Association, 2013; Cervin et al., 2021). When baseline PTSS was controlled for, the significant positive interaction between dissociation and baseline PTSS indicated that the effect of baseline PTSS on PTSS at 11 months became stronger at higher levels of dissociation. However, the second moderation analysis that explored the interaction effect between dissociation and treatment arm found no moderation effect. Our findings replicate previous research suggesting that baseline dissociation does not moderate treatment outcomes (CT-PTSD or EMDR) (Hoeboer et al., 2020). In other words, our findings might suggest that the level of dissociation severity does not prevent individuals from responding to a trauma-focused treatment such as CT-PTSD.

The other significant interaction effect observed was between intrafamilial abuse and treatment arm. Our findings revealed that children who experienced intrafamilial abuse had better outcomes with CT-PTSD at the 11 months follow-up. Although there is no research that directly explores whether intrafamilial abuse moderates treatment efficacy, evidence suggests that CT-PTSD, compared to no intervention, effectively reduces feeling of guilt, enhances emotional regulation abilities, and modifies anxious and avoidance attachment style in women victims of domestic abuse. (Talaiyan Pour & Davasaz Irani, 2025). Conversely, in contrast with previous meta-analyses that reported superior effect size for sexual abuse from CBT compared to non-CBT conditions (Harvey & Taylor, 2010; Silverman et al., 2008), our findings did not indicate any significant effect. This discrepancy may be attributed to

differences in study design, as meta-analysis aggregates effect sizes from multiple studies that may use different outcome measures and have larger sample sizes, thereby increasing statistical power. This suggests that future research should further explore the effects of sexual and intrafamilial abuse on PTSS and treatment response with larger samples.

The present study has both strengths and limitations. The RCT design and the recruited sample reflect a pragmatic trial that captures the current clinical presentation of children and adolescents exposed to multiple traumas over time. The exploratory nature of the study allows for the consideration of a wide range of factors, laying the groundwork for future research on moderators of treatment effectiveness, a field that is still in its early stages. However, the study is limited by its effect size, as the sample size was drawn from the DECYPT trial where only a modest effect for treatment arm was detected. This necessitates cautious interpretation of our findings, and the exploration of various moderation effects may be susceptible to Type I errors; indeed, it is important to note that any adjustment made for multiple comparisons would render the significant moderator analyses found here non-significant. In other words, a larger sample size will be necessary to detect some weaker moderation effects.

This study may have important clinical implications indicating perceived complexity in clinical presentation such as exposure to multiple trauma and comorbid conditions, may not prevent children and adolescents from responding to treatment. Being female, having depression, panic, DSO, and dissociation severity consistently predicted PTSS severity after treatment and remained at 11 months may suggest that a longer-term intervention may help to mitigate PTSS (Meiser-Stedman et al., 2025). In addition, the moderation effect of dissociation to PTSS controlling for baseline PTSS suggest that reduction in dissociative symptoms may be an important treatment target for multiple trauma-exposed young people.

Conclusion

The investigation of treatment moderators for PTSD in youth is still in its infancy, and there are currently no established theoretical models for moderation effects. This is despite recommendations for a directed regression approach, where the selection of variables to regress on each other is informed by a theoretical or conceptual model (Jaccard et al., 2006). Future research could seek to better understand the moderator effects of demographics, trauma characterises and co-morbid condition with larger sample sizes to enhance effect sizes in longitudinal design. This could provide greater insight into the intricate relationship between the diverse clinical presentations of trauma-exposed children and adolescents, further informing the development of theoretical models of moderation effects and guiding clinical practice with the most tailored and effective approaches. Our results support that psychological interventions are not contraindicated by the presence of any demographic factors, trauma characteristics, or comorbidities at baseline, highlighting the positive applicability of these interventions to populations that might be considered complicated.

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Chapter 4

Discussion and Critical Evaluation

Word count: 1633

Chapter 4: Discussion and Critical Evaluation

Summary of findings

Traumatic experiences that involve threatened death, serious injury, or sexual violence pose substantial challenges for clinical services and public health systems, particularly among young people (American Psychiatric Association, 2013). Young people are often more susceptible to stressors due to their ongoing neurobiological, emotional, and social development (Lupien et al., 2009). The clinical presentation of post-traumatic stress disorder (PTSD) is particularly severe in young individuals who have experienced multiple traumatic stressors, such as physical or sexual abuse, witnessing domestic violence, war, or community violence (Holt et al., 2007; Suliman et al., 2009). The prevalence of PTSD in adolescents has been estimated at 4.7%, with significantly higher rates among females (7.3%) than males (2.2%) (McLaughlin. et al., 2013). Children and adolescents exposed to interpersonal violence, including rape, sexual assault, and physical abuse by caregivers or romantic partners, appear to be at particularly high risk for PTSD onset (McLaughlin et al., 2013). The Developmental Trauma Theory refers to prolonged, cumulative interpersonal trauma which occurs through sensitive periods of infant and child development, and disrupts attachment, safety, and core cognitive, emotional, and behavioural regulation capacities (Cruz et al., 2022). The recurrent lack of safety may create a self-perpetuating cycle of maladaptation, making individuals more prone to internalising disorders (Troisi, 2020). This highlights a clear gap in knowledge regarding the prevalence of PTSD and/or major depressive disorder (MDD), a common comorbid internalising condition, among children and adolescents exposed to intrafamilial abuse.

To our knowledge, this is the first systematic review and meta-analysis to estimate rates of PTSD and/or MDD in young people exposed specifically to intrafamilial abuse. Drawing

from 15 studies from 2677 participants indicated a pooled prevalence of PTSD as 18.6 %. Our estimate for intrafamilial abuse was lower than pooled rates from studies including all interpersonal traumas (25.2% and 32.1%, respectively) (Alisic et al., 2014; Visser et al., 2025). However, it remained higher than prevalence reported for non-interpersonal trauma in Alisic et al. (9.7%) and Visser et al. (11.8%), suggesting that intrafamilial abuse may confer greater risk than non-interpersonal trauma. Eight studies with 1,529 participants yielded a pooled MDD prevalence of 20.1%. This was lower than previous estimates for trauma-exposed youth (24.2%) and for interpersonal violence (28.7%) (Vibhakar et al., 2019), suggesting that intrafamilial abuse does not confer higher risk of PTSD or MDD than other abuse or violence types (Bal et al., 2004). However, our findings should be interpreted with caution due to the high heterogeneity. Moderator analyses showed no evidence that PTSD prevalence varied by measurement method, type of abuse, or study quality, indicating that these factors did not account for the observed heterogeneity. For MDD, moderator analyses were not feasible because too few studies were available.

Our systematic review and meta-analysis showed that approximately one in five young people exposed to intrafamilial abuse or maltreatment met criteria for PTSD or depression, higher than rates in non-trauma-exposed youth, and that prevalence estimates are highly heterogeneous. This highlighted the need to move beyond documenting prevalence to understanding which trauma characteristics and comorbid difficulties place young people at greatest risk and how these factors shape treatment response. Guided by NICE recommendations for trauma-focused CBT, the empirical study therefore examined how a broader range of individual characteristics, trauma profiles, and co-occurring symptoms, particularly in youth exposed to multiple traumas, influence response to CT-PTSD.

Our exploratory empirical study using secondary data from DECRYPT revelated that baseline sex at birth, depression and disturbances in self-organisation (DSO) severity in 120 children and adolescents with multiple traumas positively predicted post-traumatic stress symptoms (PTSS) at both post-treatment and 11 months, with a medium effect. Main effects indicated that, after controlling for baseline PTSS, being female and having experienced intrafamilial abuse were associated with higher PTSS at 11 months. Higher baseline dissociation significantly moderated baseline and 11-month PTSS. After accounting for treatment arm, female sex, White British ethnicity, intrafamilial abuse, DSO, dissociation, depression, generalised anxiety, panic, and voice hearing predicted higher PTSS, and intrafamilial abuse moderated treatment effects such that CT-PTSD was more beneficial than treatment as usual. However, most other potential moderators were non-significant. Our findings suggest that CT-PTSD is beneficial for children and adolescents exposed to multiple traumas, with limited evidence that treatment effects depend on demographics, trauma characteristics, or comorbidity. However, these conclusions should be interpreted cautiously given the modest sample size and limited power to detect moderation effects.

Strength and limitations

To our knowledge, this systematic review and meta-analysis is the first to examine the prevalence of PTSD and/or MDD in children and adolescents exposed to intrafamilial abuse. It provides groundwork and advances understanding of the risk of developing psychopathology following interpersonal abuse in this specific developmental group. The review also offers an updated overview of the dominant use of DSM-5 diagnostic tools and the overrepresentation of studies from high-income countries. Similarly, the RCT design and recruited sample in the empirical paper constitute a pragmatic trial that reflects the current clinical presentation of children and adolescents exposed to multiple traumas over time. The

exploratory nature of the study permits consideration of a wide range of factors, laying important framework for future research on moderators of treatment effectiveness, a field that remains in its early stages.

There are several limitations to this study. In the meta-analysis, substantial heterogeneity combined with limited diversity in study settings (i.e. predominantly high-income countries) raises concerns about how far the findings can be generalised to global prevalence patterns. In addition, the small number of studies available for moderation analyses reduced statistical power and the strength of the inferences that can be drawn. The review primarily included studies using DSM-based diagnostic criteria, reflecting an underrepresentation of ICD-based diagnoses and a potential source of unexamined variability in our findings. Because the review focused specifically on intrafamilial abuse, detailed information was often missing (e.g. sex-specific rates of each disorder, or abuse sub-type such as sexual vs physical abuse), which constrained our ability to examine how individual characteristics shape risk. In the empirical paper, the sample was drawn from the DECYPT trial, in which only a modest treatment-arm effect was detected, necessitating cautious interpretation of our findings and increasing the likelihood that some moderation effects may represent Type I errors; a larger sample will be needed to detect weaker moderation effects.

Clinical implication

The current study presents original research alongside a novel systematic review of PTSD and or/ MDD prevalence in children and adolescents exposed to intrafamilial abuse. It aims to improve understanding of how individual characteristics, trauma types, and comorbid conditions shape outcomes in young people, distinguishing them from adults. Previous work has often combined children, adolescents, and adults under a single category of “patients,”

overlooking these developmental differences. Given that PTSD prevalence differs between youth and adults, and that adolescence is marked by rapid developmental, biological, psychological, and cognitive change, examining incidence and treatment response in this group can support a better understanding of young people's needs and inform more tailored interventions.

Intrafamilial abuse is frequently conceptualised as one of the most severe forms of trauma exposure, yet the comparatively lower prevalence rates of PTSD and MDD in our meta-analysis compared to previous studies observed in trauma-exposed youth indicate that its impact on these disorders may not be as elevated as previously expected. The challenge of recruiting studies focused specifically on intrafamilial abuse in children and adolescents has important research and clinical implications. This meta-analysis indicates that, contrary to assumptions, intrafamilial abuse does not show a higher clinical risk of PTSD or MDD than reported in previous studies of other interpersonal traumas. However, children and adolescents exposed to intrafamilial abuse are likely under-detected, given delayed disclosure and incomplete reporting during assessment. This underlines the need for proactive, trauma-informed screening that does not rely solely on child self-report, using multi-informant, multi-method approaches and paying particular attention to younger children and those with suspected intrafamilial abuse, to avoid missing significant mental health problems and to increase opportunities for earlier intervention.

Regarding intervention, the investigation of treatment moderators for PTSD in youth is still in its infancy, and there are currently no established theoretical models for moderation effects. Being female, having depression, panic, DSO, and dissociation severity consistently predicted PTSS severity after treatment and remained at 11 months may suggest that a

longer-term intervention may help to mitigate PTSS (Meiser-Stedman et al., 2025). In addition, the moderation effect of dissociation to PTSS controlling for baseline PTSS suggest that reduction in dissociative symptoms may be an important treatment target for multiple trauma-exposed young people. Our results support that psychological interventions are not contraindicated by the presence of any demographic factors, trauma characteristics, or comorbidities at baseline, highlighting the positive applicability of these interventions to populations that might be considered complicated.

Conclusion

In conclusion, this thesis portfolio examined the trajectory of PTSD in trauma-exposed children and adolescents, from prevalence through to treatment response. The systematic review indicated that approximately one-fifth of intrafamilial-abuse-exposed youth developed PTSD and/or MDD, a rate lower than that reported for youth exposed to interpersonal trauma more broadly. Moderator analyses of individual characteristics (e.g. demographics, type of intrafamilial trauma, measurement method, and study quality) did not identify significant effects. Given the practical limitations of the review, future prevalence studies should recruit more diverse samples, report gender-stratified outcomes, draw on both DSM and ICD diagnostic frameworks where possible, and describe trauma exposure with greater precision. The empirical paper found that most potential moderators were non-significant, suggesting that CT-PTSD is generally beneficial for children and adolescents exposed to multiple traumas, with limited evidence that its effects depend on demographics, trauma characteristics, or comorbidity; however, these findings require cautious interpretation due to the modest sample size and limited power. Future work should investigate moderator effects of demographics, trauma characteristics, and comorbid conditions using larger samples and

longitudinal designs, to clarify how differing clinical presentations shape treatment response and to guide more tailored, theoretically informed clinical interventions.

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Appendices Table

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Appendices

Appendix A: **Author Guidelines for Psychological medicine**

Article Type	Usual Max Word count*	Abstract	References	Tables/figures**	Supplementary material online only
Review article	4500	250 words, not structured	APA style	Usually up to 5 total	Yes

References
The guidelines set forth in the Publication Manual of the American Psychological Association (6th ed.) should be used in the text and a complete list of References cited given at the end of the article.

Figures and tables
Only essential figures and tables should be included and should be provided in black and white except in exceptional circumstances, eg PET scan images etc. If you request colour figures in the printed version, you will be contacted by CCC-Rights link who are acting on our behalf to collect Author Charges. Please follow their instructions in order to avoid any delay in the publication of your article. Further tables, figures, photographs and appendices, may be included with the online version on the journal website.
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NOTE:
1. 1. Figures should be submitted as discrete files, not embedded in the text of the main document.
2. 2. Supplementary material for online only should be submitted as discrete files, not as part of the main text.

Required Statements

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Where research involves human and/or animal experimentation, the following statements should be included (as applicable): "The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008." and "The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional guides on the care and use of laboratory animals."
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Appendix B: Full search terms for systemic review

Children exposed to domestic abuse include children with experience with child maltreatment, child physical abuse, child emotional abuse, neglect, witness of family physical and emotional abuse. Search terms to be used:

("child*" OR "young people" OR "adolescent*" OR "youth*" OR "teenage*" OR "boy" OR "boys" OR "girl*")

AND ("domestic violence" OR "intimate partner violence" OR "maltreatment" OR "neglect" OR "abuse")

AND ("depression" OR "depressive disorder" OR "PTSD" OR "post-traumatic stress" OR "posttraumatic stress")

AND ("prevalence" OR "incidence" OR "epidemiology" OR "rate")

AND (intrafamilial OR "within-family" OR "domestic" OR "home" OR "famil*")Articles will be included if they have been peer-reviewed and are in English.

Appendix C: Adapted Quality Assessment Tool

This quality assessment is adapted from The Quality Appraisal Checklist for Studies Reporting Correlations and Associations (NICE, 2012) and the Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies (National Heart Lung and Blood Institute, 2014).

1	Was the study population clearly specified and defined?	
	Detailed information reported on characteristics and demographics of participants and intrafamilial abuse variables (e.g. type of abuse, perpetrator information), with information about the setting reported	2
	Adequate information reported on some characteristics and demographics of participants and/or intrafamilial abuse variables, with some information about the setting	1
	Demographic characteristics, intrafamilial abuse variables and setting not reported in any detail	0
2.	Were study participants recruited in an appropriate way?	
	Consecutive or random sample of potential participants approached to take part in the study in person	2
	Consecutive or random sample of potential participants were approached to take part in the study via letter or phone call	1
	Authors do not report how participants were recruited	0
3.	Was the sample size adequate?	
	Sample size adequate to detect prevalence of PTSD/depression with consideration of previous studies and/or sample size calculation	2
	Sample size adequate to detect prevalence of PTSD/depression without mention of previous studies or sample size calculation	1
	No evidence of sample size justification or calculation and small sample size	0
4.	Was the participation rate of eligible persons at least 50%?	
	More than 50% of those eligible took part in the study	2
	Less than 50% of those eligible took part in the study	1
	Number of eligible potential participants not reported	0
5.	Were reasons for non-response described?	

	Authors described reasons for non-response and numbers i.e. number of those that did not wish to take part broken down by reason	2
	Authors described reasons for non-response but give no indication of numbers for each reason	1
	Authors did not report reasons for non-response	0
6	Were objective, standard criteria used for the assessment of PTSD/depression?	
	Diagnostic interview shown to demonstrate good levels of validity and reliability in assessment of PTSD/depression in children and adolescents adhering to DSM-IV or DSM-5 criteria for PTSD/depression i.e. cluster-based algorithm for DSM-4. i.e. internal consistency (cronbach's alpha) is at least 0.7 (either reported in the paper, or the measure has adequate IC reported in other peer reviewed papers)	2
	Self-report questionnaire shown to demonstrate good levels of validity and reliability in assessment of PTSD/depression in children and adolescents adhering to DSM-IV or DSM-5 criteria for PTSD/depression i.e. cluster-based algorithm for DSM-4; or interview adhering to DSM criteria	1
	Observer-rated questionnaire/interview, self-report questionnaire without utilising DSM criteria (e.g. not conforming to cluster-based algorithm for DSM-IV PTSD/depression), self-report questionnaire for PTSD/depression, generic clinical interview	0
7	Was PTSD/depression assessed reliably?	
	Assessment carried out by Clinical Psychologist/Psychiatrist/appropriately trained professional in person, at the most convenient location (e.g. at home if participant discharged from hospital), with efforts made to see the child/adolescent alone	2
	Assessment carried out by Clinical Psychologist/Psychiatrist/appropriately trained professional over the phone. Or, carried out in person but doesn't give detail about who conducted this.	1
	Assessment of PTSD/depression indirect e.g. through proxy such as parent or healthcare professional. Lack of	0

	information about where assessment took place and who facilitated this	
8	Was there appropriate statistical analysis?	
	Statistical methods used for analysis were appropriate, with confidence intervals at 95% reported for prevalence estimate	2
	Statistical methods used for analysis were appropriate, but confidence intervals for prevalence not reported	1
	Statistical methods used for analysis were inappropriate or lack of information on statistical methods utilised when data reported	0
9	Are all important confounding factors/subgroups/differences identified and accounted for?	
	The authors report overall prevalence of PTSD/depression as well as performing statistical analysis to identify particular subgroups within the sample e.g. compare prevalence of PTSD/depression in males to females; correlation or regression between moderator variables and PTSD/depression rate/severity, different types of intrafamilial abuse	2
	The authors report overall prevalence of PTSD/ depression whilst commenting on observed differences between subgroups	1
	The authors report overall prevalence of PTSD/depression but do not comment on subgroups or confounding variables	0

Appendix D: Author Guidelines for Journal of Child Psychiatry Psychology Advances

Author Guidelines

1. Submission and Peer Review Process

Once the submission materials have been prepared in accordance with the Author Guidelines, manuscripts should be submitted online at **https://wiley.atyponrex.com/journal/JCV2**. *Please be advised that if your paper is submitted via the ReX portal and unsubmitted for corrections to be made, or you otherwise wish to manage your paper, you may do so through the same link. If your paper was submitted using the previous portal (prior to September 23, 2024), please access your paper via the following link:* **ScholarOne Manuscripts (manuscriptcentral.com)**.

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Appendix E

DECRYPT Parent Information Sheet



The DECRYPT Study:
Delivery of Cognitive therapy for Young People after Trauma

We are carrying out the DECRYPT study to improve our treatment of post-traumatic stress disorder (PTSD) for children and teenagers who have been through several very scary or upsetting experiences. Post-traumatic stress often involves thoughts or memories of the experiences, nightmares, and other forms of anxiety and distress.

We would like to invite you and your child to participate in the DECRYPT study. Please read this information sheet if you are interested in learning more. *It is completely up to you if you would like to take part in this study*. You are welcome to ask questions about and discuss the study with a member of our team. You do not have to make your mind up immediately.

What is the purpose of the study?
Children and young people who have PTSD might receive help from Child and Adolescent Mental Health Services (CAMHS) and other NHS services. We are trying to see if we can improve the care that CAMHS and similar services offer to young people with PTSD.

We want to compare the standard care and support that NHS services offer with a type of talking therapy called "cognitive therapy" (more information on this is given below).

We think that cognitive therapy might be a better way to help young people, but we don't know for sure - this study will help us answer this question. This is the first study (a clinical trial) to look at the treatment of PTSD in children and young people by NHS services.

Why have we been invited to take part?
You and your child have been invited to take part in the DECRYPT study as your child has been through very scary or upsetting experiences and is experiencing symptoms of PTSD.

Do we have to take part?
No! It is up to you and your child to decide. If you do want to join in we'll ask you to sign a consent form, a copy of which you can keep with this information sheet.

You and your child are free to stop taking part in the study any time you like. You do not have to give us a reason if you choose to withdraw, but if you can give us any information that would help us to improve the study and think about how we offer care to young people with PTSD.

If you don't want to take part in the study or you decide to withdraw from the study the care you receive from NHS services or your doctor will not be affected.

What happens in the study?
Initially, you and your child will have an assessment to see how the experiences have affected your child and you. This will involve you both completing an interview (taking about 30-60 minutes each) and some questionnaires (taking 20-40 minutes for your children, about 20 minutes for you). These

are thorough and an important part of the study. We would encourage your child to take breaks if they are getting tired.

It may be after this assessment that we decide that it is not appropriate for your child to enter this study. In this case we will let you and the people who referred you to the study know, and we will pass on information that is relevant for your child's care (if you and child agree to this). You will still receive the normal care the NHS service (e.g. CAMHS) offers.

If we decide you and your child are eligible for this study, we will let you know and you are free to enter the study or not. If you decide to enter the study, your child will receive help and support in the local CAMHS team or other NHS service (see below for details of what this will involve).

After two and a half months we would like your child to complete some questionnaires (these will take about 15-30 minutes to complete). After five months we will repeat the interview (about 30 minutes to complete) and questionnaires (20-40 minutes to complete) to see how your child is feeling and doing. We will also see how they are doing six months after that, and, if funding is available, two years later. The same parent/caregiver would need to complete our questionnaires and measures throughout the study.

As far as possible we will try to make participation in this study as easy as possible, and minimise the disruption to your child's education, e.g. conducting interviews at home or on the phone. Any treatment sessions or other appointments however will conducted in the normal way at your local CAMHS or other NHS service.

We would like to audio record some interviews and clinical sessions that you and your child participate in – this is so that we can check we are conducting these interviews and sessions properly. If you do not wish for your sessions to be recorded, that is fine.

What kind of help will my child receive?

If you decide to take part in this study, your child will receive one of two types of care. Which one your child receives will be decided randomly (e.g. like a coin toss) – *we do not choose* who gets which type of care. This is a really important part of this study – it means the study is fair and that we will learn the best way of helping young people with PTSD.

One type of care will be the standard help and care that your local CAMHS or other NHS service offers children and young people who have had very scary or upsetting experiences. This care might involve different things – it really depends on what your local clinical team think is best and what they currently offer.

The other type of care will be a new kind of support called cognitive therapy. In cognitive therapy people learn how to feel better and talk about the very scary or upsetting things that have happened to them, often in lots of detail. Your child will meet a therapist in the clinic for these sessions. They will normally see you about once a week, for up to 15 sessions (this many meetings may not be needed). Sessions usually last 60-90 minutes.

Who is running this study?

The study is run by our team at the University of East Anglia. It is funded by the National Institute of Health Research (the part of the NHS that does research into how best to help people).

Who is taking part in the study?
We will recruit 120 children and young people (aged 8-17 years) into this study who are being seen by CAMHS or other NHS services and have post-traumatic stress that they are finding difficult.

Will taking part in this study help my child?
It could do. Both types of support often help children and young people feel better. Having cognitive therapy *might* help children and young people to feel better than normal support and care – we don't know. That is why we are doing this study.

Will taking part in this study be difficult or distressing?
We do not think that taking part in this study will hurt your child or you. Sometimes, young people say that at first that it can be difficult to talk about very scary upsetting things that have happened to them. We find that most young people think it helps in the long run to talk about the things they have experienced.

What samples will you need from my child?
We would like to collect some of your child's saliva to look at their DNA and genes. We would like to do this at the beginning of their involvement in the study and five months later (see below). Collecting saliva is pretty easy – your child will just need to spit into a plastic tube.

Why do you need to do this?
It is thought that genes – the "instruction manual" in every cell of our bodies that tell them how to grow and work – may be involved in how children and young people respond to mental health care. We want to see if genes have anything to do with PTSD and response to therapy sessions.

We will store the genetic samples for potential use in future studies looking at genes and how people respond to very scary or upsetting events. These samples would be stored *anonymously* – no one outside the study team will be able to identify who the sample belongs to. Your child's saliva sample will be stored at the University of East Anglia's Biorepository until we are able to analyse it. The samples may be sent to another place in the UK for analysis but we will ensure that your child will not be identifiable.

We do not believe that we will learn any information from your child's DNA that will be important for your child's future health and care, e.g. a particular risk factor for ill health. Therefore we will not be providing any information to participating families about the DNA samples we collect.

This is an *optional* part of the study. Your child is welcome to participate in this study and *not* provide a saliva sample if you wish.

Will we receive any payment?
Yes, we will be able to make a small payment for each interview assessment to cover travel costs and as a thank you for your time and support of this study.

Confidentiality – who will know we are taking part in this study?
We will let your GP (family doctor) know that you and your child are helping with this study. We will also let the person who told you about this study know you are taking part.

All information collected about you during the research will be kept strictly confidential. The only exception to this is if we believe that someone is in danger or at risk of being harmed, when we

might need to seek help from other agencies. All information and samples we collect will be stored in secure locations and on encrypted computers, and we will keep your personal information (i.e. how you might be identified) separate from the other information and samples we collect.

Some data we collect in this study may be passed on anonymously to other researchers. This is because collecting data from lots of different studies can sometimes help us to learn much more than single studies on their own. However, we would ***never*** share any information that would allow you and your child to be identified (e.g. name, address, date of birth, details of what happened to your child).

The results we obtain will be published in order to help other people working with children who have been in very scary or upsetting events, but you and your child will *not* be named.

If you agree that your child should take part in the study they will be given a study number and information will be transferred and stored at UEA using this number on a secure database. We will also store a copy of your consent form in a secure cabinet at UEA and your contact details on a separate secure database to allow us to contact you about the study.

If you decide to withdraw your child from the study we would remove your contact details from our records, but keep other information (e.g. questionnaire responses) you or your child have provided for use in our research. This is important for a clinical study, as we need to report information on all people who join the study.

Personal and research information will be kept securely at UEA for 10 years after the study ends; after 10 years your personal information will be deleted or destroyed.

Has this research study been approved by an ethics committee?
Yes, this study has been checked by The Cambridge South Research Ethics Committee (16/EE/0233) and they are approved the research, i.e. they are satisfied that the study is safe and will be useful.

I have some questions about this study, who do I contact?
You can speak to the person who told you about this study. You can also contact Dr Richard Meiser-Stedman at the University of East Anglia who is over-seeing this project. His contact details are:

Direct line: 01603 593601
Email: r.meiser-stedman@uea.ac.uk

What if I am not happy about the research study or wish to make a complaint?
If you are not happy about this research study or wish to make a complaint about it, then please contact the NHS Patient Advisory Liaison Service at Norfolk & Suffolk NHS Foundation Trust, PALS-0800 279 7257 or by email at pals@nsft.nhs.uk or Professor Ken Laidlaw at the University of East Anglia (phone 01603 593600, email k.laidlaw@uea.ac.uk).

***REMEMBER*:**

You and your child don't have to take part in this study
You and your child can leave the study any time you like

Thank you very much for reading this information sheet

DECRYPT Norfolk and Suffolk NHS Foundation Trust NHS National Institute for Health Research UEA University of East Anglia

Helping Children after Very Scary or Upsetting Events Study

What is a research study?

A research study is a careful way of finding out the answer to a question.

Why have I been asked to do this research study?

You have been through some things that are very scary or upsetting, and have been offered help through your local child mental health service.



Why is this study being done?

This study is to help us find the best way of helping children who have been through something very scary or upsetting.

Do we have to take part?

No, it is up to you and your family!
You can decide to leave the study at any point, and *you do not have to tell us why*.
You will not be treated any differently by any hospital or doctor if you decide that you do not want to take part in this study.

What happens in the study?

First we would like to ask you questions about how you are feeling. After this you will have some help and support.



There will be more times when we ask you questions about how you are feeling; about two months, five months, 11 months and possibly 29 months after you join the study. These questions will be about how you are thinking and feeling. These can take some time to finish, but you can have as many breaks as you need.

We would like to record some of the meetings you have with us. This is so we can check we are doing things properly. If you don't want this to happen, that is fine!

We would also like to take some of your spit – at the beginning of your sessions and at the end of your sessions. If you don't want to do this, that is fine.

What happens during the therapy sessions?



If Norfolk and Suffolk NHS NHS Foundation Trust you decide to take part in this study, you will receive one of two types of care. Which one you get will be decided *randomly*, a bit like a coin toss – **we do not choose** who gets which type of care.

One will be the standard help given to children who have been in very scary or upsetting things.

The other will be a new type of support called "cognitive therapy". In cognitive therapy people talk about the very scary or upsetting things that have happened to them. Children will have a weekly meeting with a grown up for these sessions. There will up to 15 meetings (but that many may not needed). The meetings last for 60 to 90 minutes.

Who is running this study?

The study is a project run by scientists at the University of East Anglia. It is funded by the National Institute of Health Research (part of the government).

Who is taking part?

We are asking 120 children and teenagers who have been through very scary or upsetting experiences to take part in this study.



Will taking part in this study help me?

It could do! Both types of support often help children feel better. Having cognitive therapy *might* help children to feel better than normal support and care – we don't know. That is why we are doing this study.

Will taking part in this study be difficult or upsetting?



We do not think that taking part in this study will hurt you. Sometimes, children say that at first it can be upsetting to talk about very scary or upsetting things that have happened to them. We find that most children think it helps to talk about the very scary or upsetting things.

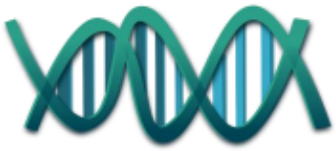
Who will know I am taking part in this study?

We will tell your GP (family doctor) that you are helping with this study. We will also tell the person who let you know about this study that you are taking part.

No one else will know about you taking part in this study. We won't tell anything about you to anyone else, unless we think that you or someone else is at risk of being hurt.

We will use all the things that people tell us to try and help other children in the future, but we won't tell your name and address to anyone else.

What will you do with my spit?



We will use your spit to look at your genes. All plants and animals have genes – they are the "instruction manual" in every cell of our bodies that tell them how to grow and work. We want to see if genes affect how we feel after very scary or upsetting things, or after having therapy sessions.
If you don't want to give us a spit sample that is fine!

Did anyone else check the study is OK to do?

Yes, this study has been checked by several people. The group of people who checked this study is called an "ethics committee". The Cambridge South Research Ethics Committee (16/EE/0233) checked this study and they are happy for the study to take place.

I have some questions about this study, who do I contact?



You can speak to the person who told you about this study. You can also contact Dr Richard Meiser-Stedman at the University of East Anglia who is in charge of the study. His contact details are:

Direct line: 01603 593601
Email: r.meiser-stedman@uea.ac.uk

***REMEMBER*:**
You don't have to take part in this study
You can leave the study any time you like

Thank you very much for reading this information sheet!

Child Information Sheet 12-15 years

Helping children and young people after very scary and upsetting experiences (the DECRYPT study)

Sometimes young people who go through very scary or upsetting experiences can have some scared feelings that do not go away on their own. These scared feelings are sometimes called post-traumatic stress.

The DECRYPT study is trying to find the best way to help young people who have been through very scary or upsetting experiences and have post-traumatic stress. We would like you to take part.

Please read this information sheet if you are interested in taking part. It's completely up to you if you would like to take part in the study.

You do not have to make your mind up right away. You are welcome to ask questions about the project and to talk about it with other people.

What is the purpose of the study?
Children and young people who have post-traumatic stress might receive help from Child and Adolescent Mental Health Services (CAMHS) and/or other NHS services. We are trying to see if we can improve the care that services offer.

We want to compare the standard care and support that services offer with a talking therapy called "cognitive therapy". We think that cognitive therapy might be a better way to help young people, but we don't know. This study will give us an answer.

Why have we been invited to take part?
You have been invited to take part in the DECRYPT study as you have been through some very scary or upsetting things and have some post-traumatic stress.

Do we have to take part?
No! It is up to you and your family.

You are free to stop taking part in the study any time you like.

If you don't want to take part in the study or decide to stop taking part in the study you will not be treated any differently by NHS staff or your doctor now or any time in the future.

What happens in the study?
First we will see how you are doing now. We would like to interview you and ask you to complete some questionnaires. The interview will about 30-60 minutes to complete and the questionnaires will take around 20-40 minutes to complete. We will make sure that you can have breaks if you need them.

After this you will have some help and support in your CAMHS/local NHS service. We will then check how you are feeling and coping, 2.5 months after you entered the study; this will just involve

some questionnaires (taking about 15-30 minutes to complete). We will also see how you feeling and coping five months and 11 months after you joined the study (and possibly two years later as well). These will involve more questionnaires (about 30 minutes to complete) and sometimes an interview (about 30 minutes).

We would like to audio record some interviews and meetings with you – this is so that we can check we are doing these interviews and meetings properly. If you do not wish for your sessions to be recorded, that is fine.

What kind of help will I get?
If you decide to take part in this study, you will receive one of two types of care. Which one you get will be decided randomly, a bit like a coin toss – *we do not choose* who gets which type of care. This is a really important part of this study – it means the study is fair and that we will learn the best way of helping young people with post-traumatic stress.

One type of care will be the standard help and care that your local service offers children and young people who have been through very scary or upsetting things. This care might involve different things – it really depends on what they think is best and what they currently offer.

The other type of care will be a new kind of support called "cognitive therapy". In cognitive therapy people learn how to feel better and talk about the very scary or upsetting things that have happened to them. You will meet a therapist in the clinic for these sessions. They will normally see you about once a week, for up to 15 sessions (it may not need that many sessions).

Who is running this study?
The study is run by our team at the University of East Anglia. It is funded by the National Institute of Health Research (the part of the NHS that does research into how best to help people).

Who is taking part in the study?
We will recruit 120 children and young people who have post-traumatic stress into this study.

Will taking part in this study help me?
It might do! Both types of support often help children and young people feel better than they did before. Having cognitive therapy *might* help children and young people to feel better than normal support and care – we don't know. That is why we are doing this study.

Will taking part in this study be difficult or distressing?
We do not think that taking part in this study will hurt you. Sometimes, children and young people say that at first that it can be hard to talk about very scary or upsetting things that have happened to them. We find that most child and young people feel better after talking about these things.

What else happens in the study?
We would also like to take some of your spit – at the beginning of your sessions and at the end of your sessions. We collect spit by asking people to spit into a plastic tube.

We will use your spit we collect to look at your genes. All plants and animals have genes – they are the "instruction manual" in every cell of our bodies that tell the cells how to grow and work. We can learn about genes from spit.

We want to see if genes affect how people feel after very scary or upsetting events. We will store the genes information we get from your spit so we can learn more about genes and how people feel after very scary or upsetting events in the future.

This is an *optional* part of the study. If you do not want to give us a spit sample that is fine. You can still take part in this study.

Will we receive any payment?
Yes, we will be able to make a small payment for each interview assessment to cover travel costs and as a thank you for your time and support of this study.

Confidentiality – who will know that I am taking part in this study?
We will let your GP (family doctor) know that you are helping with this study. We will also let the person who told you about this study know that you are taking part.

All information collected about you during the research will be kept strictly confidential – that means we will not tell anything about you to anyone else – unless we believe that you or someone else is in danger of being hurt.

Some information we collect in this study may be passed on to other scientists. This can help to support other research. However, we would ***never*** share any information that would allow you to be identified (e.g. your name, your date of birth, where you live).

The results we obtain may be published in order to help other people working with children who have been in very scary or upsetting events, but you will *not* be named.

Has this study been checked?
Yes, this study has been checked by several people; the group of people who checked this study is called an "ethics committee". The Cambridge South Research Ethics Committee (16/EE/0233) checked this study and they are happy for the research to take place.

I have some questions about this study, who do I contact?
You can speak to the person who told you about this study. You can also contact Dr Richard Meiser-Stedman at the University of East Anglia who is over-seeing this project. His contact details are:

Direct line: 01603 593601
Email: r.meiser-stedman@uea.ac.uk

What if I am not happy about the study or wish to make a complaint?
If you are not happy about this research study or wish to make a complaint about it, then please contact the NHS Patient Advisory Liaison Service at Norfolk & Suffolk NHS Foundation Trust, PALS-0800 279 7257 or by email at pals@nsft.nhs.uk or Professor Ken Laidlaw at the University of East Anglia (phone 01603 593600, email k.laidlaw@uea.ac.uk).

REMEMBER:
You don't have to take part in this study
You can leave the study any time you like

Thank you very much for reading this information sheet

The DECRYPT Study: Delivery of Cognitive therapy for Young People after Trauma

Sometimes young people who go through very scary or upsetting experiences can have some anxious feelings that do not go away on their own. These anxious feelings are sometimes called post-traumatic stress. The DECRYPT study is trying to find the best way to help young people who have been through very scary or upsetting experiences and have post-traumatic stress. We would like you to take part.

Please read this information sheet if you are interested in taking part. Your participation is *entirely voluntary* – it's completely up to you if you would like to take part in the study. You do not have to make your mind up immediately. You are welcome to ask questions about the project and to talk about it with other people.

What is the purpose of the study?
Children and young people who have post-traumatic stress might receive help from Child and Adolescent Mental Health Services (CAMHS) and/or other NHS services. We are trying to see if we can improve the care that services offer. We want to compare the standard care and support that services offer with a talking therapy called "cognitive therapy". We think that cognitive therapy might be a better way to help young people, but we don't know. This study will give us an answer.

Why have we been invited to take part?
You have been invited to take part in the DECRYPT study as you have been through some very scary or upsetting things and have some post-traumatic stress.

Do we have to take part?
No! It is up to you and your family. You are free to stop taking part in the study any time you like. If you don't want to take part in the study or decide to stop taking part in the study you will not be treated any differently by hospital staff or your doctor now or any time in the future.

What happens in the study?
First we will see how you are doing now. This will involve completing an interview and some questionnaires. The interview will about 30-60 minutes to complete and the questionnaires will take around 20-40 minutes to complete. We will make sure that you can have breaks if you need them.

After this you will have some help and support in your CAMHS/local NHS service. We will then check how you are feeling and coping, 2.5 months after you entered the study; this will just involve some questionnaires (taking about 15-30 minutes to complete). We will also see how you feeling and coping five months and 11 months after you joined the study (and possibly two years later as well). These will involve more questionnaires (about 30 minutes to complete) and sometimes an interview (about 30 minutes).

We would like to audio record some interviews and meetings with you – this is so that we can check we are doing these interviews and meetings properly. If you do not wish for your sessions to be recorded, that is fine.

What kind of help will I get?

If you decide to take part in this study, you will receive one of two types of care. Which one you get will be decided randomly, a bit like a coin toss – *we do not choose* who gets which type of care. This is a really important part of this study – it means the study is fair and that we will learn the best way of helping young people with post-traumatic stress.

One type of care will be the standard help and care that your local CAMHS/NHS service offers children and young people who have been through very scary or upsetting things. This care might involve different things – it really depends on what they think is best and what they currently offer.

The other type of care will be a new kind of support called "cognitive therapy". In cognitive therapy people learn how to feel better and talk about the very scary or upsetting things that have happened to them. You will meet a therapist in the clinic for these sessions. They will normally see you about once a week, for up to 15 sessions (it may not need that many sessions).

Who is running this study?

The study is run by our team at the University of East Anglia. It is funded by the National Institute of Health Research (the part of the NHS that does research into how best to help people).

Who is taking part in the study?

We will recruit 120 children and young people into this study who are being seen by CAMHS/local NHS services and have post-traumatic stress that they are finding difficult.

Will taking part in this study help me?

It might do! Both types of support often help children and young people feel better than they did before. Having cognitive therapy *might* help children and young people to feel better than normal support and care – we don't know. That is why we are doing this study.

Will taking part in this study be difficult or distressing?

We do not think that taking part in this study will hurt you. Sometimes, young people say that at first that it can be hard to talk about very scary or upsetting things that have happened to them. We find that most young people think it helps to talk about these things.

What else happens in the study?

We would also like to take some of your spit – at the beginning of your sessions and at the end of your sessions. This involves spitting into a plastic tube.

We will use your spit we collect to look at your genes. All plants and animals have genes – they are the "instruction manual" in every cell of our bodies that tell the cells how to grow and work. We can learn about genes from spit.

We want to see if genes affect how people feel after very scary or upsetting events. We also want to see if genes have anything to do with post-traumatic stress and how people feel after therapy sessions. We will store the genetic information we get from your spit so we can learn more about

genes and how people feel after very scary or upsetting events in the future. These samples would be stored anonymously – no one outside the study team will be able to identify who the sample belongs to. Your spit sample will be stored at the University of East Anglia's Biorepository until we are able to analyse it. If the saliva is to be analysed at another place, we will make sure that you cannot not be identified. The sample may then be transferred to another place in the UK for analysis but, we will ensure that you cannot be identified from the sample.

We do not believe that we will learn any information from your DNA that will be important for your future health and care, e.g. a particular risk factor for ill health. Therefore we will not be providing any information to young people and their families about the DNA samples we collect.
This is an *optional* part of the study. If you do not want to give us a spit sample that is fine. You can still take part in this study.

Will we receive any payment?
Yes, we will be able to make a small payment for each interview assessment to cover travel costs and as a thank you for your time and support of this study.

Confidentiality – who will know that I am taking part in this study?
We will let your GP know that you are helping with this study. We will also let the person who told you about this study know that you are taking part.

All information collected about you during the research will be kept strictly confidential unless we believe that you or someone else is in danger of being hurt.

Some information we collect in this study may be passed on to other researchers. This is because collecting information from lots of different studies can sometimes help us to learn much more than single studies on their own. However, we would ***never*** share any information that would allow you to be identified (e.g. your name, your date of birth, where you live).

The results we obtain may be published in order to help other people working with children who have been in very scary or upsetting events, but you will *not* be named.

If you agree to take part in the study you will be given a study number and information will be transferred and stored at UEA using this number on a secure database. We will also store a copy of your consent form in a secure cabinet at UEA and your contact details on a separate secure database to allow us to contact you about the study.

If you decide to withdraw from the study we would remove your contact details from our records, but keep other information (e.g. questionnaire responses) you have provided for use in our research. This is important for a clinical study, as we need to report information on all people who join the study.

Personal and research information will be kept securely at UEA for 10 years after the study ends; after 10 years your personal information will be deleted or destroyed.

Has this study been checked?
Yes, this study has been checked by an NHS ethics committee, who check that studies are fair, safe and going to be helpful. The Cambridge South Research Ethics Committee (16/EE/0233) checked this study and they are happy for the research to take place.

I have some questions about this study, who do I contact?

You can speak to the person who told you about this study. You can also contact Dr Richard Meiser-Stedman at the University of East Anglia who is over-seeing this project. His contact details are:

Direct line: 01603 593601
Email: r.meiser-stedman@uea.ac.uk

What if I am not happy about the study or wish to make a complaint?

If you are not happy about this research study or wish to make a complaint about it, then please contact the NHS Patient Advisory Liaison Service at Norfolk & Suffolk NHS Foundation Trust, PALS-0800 279 7257 or by email at pals@nsft.nhs.uk or Professor Ken Laidlaw at the University of East Anglia (phone 01603 593600, email k.laidlaw@uea.ac.uk).

REMEMBER:

You don't have to take part in this study
You can leave the study any time you like

Thank you very much for reading this information sheet

Appendix F

Child Assent Form 8-15 years

Norfolk and Suffolk NHS Foundation Trust

National Institute for Health Research

University of East Anglia

Site number: _____

Participant ID number: _____

CHILD/YOUNG PERSON ASSENT FORM

Title of project: **DECRYPT – Delivery of Cognitive Therapy for Young People after Trauma**

	Please *TICK* box if YES
1. I have read an information sheet (v2.0, dated 20/1/2018) about this study (or someone read the information sheet to me). I have had the chance to ask questions about this study.	☐
2. I understand that I don't have to take part in this study unless I want to. I understand that I can stop taking part in the study any time I want. I know that if I don't take part in this study or if I decide to leave the study, this won't affect the care I get from hospitals.	☐
3. I know that people from the DECRYPT team will read information about me that is stored at the clinic. I am happy for this to happen.	☐
4. I am happy for information about me to be shared with other people who do research studies. I know that if this happens, you will NOT tell anyone else my name, where I live or any information that could identify me. (*Optional* – you can still participate and not agree to this bit).	☐
5. I am happy for you to tell my doctor that I am taking part in this study	☐
6. I am happy if you contact me in the future about other studies.	☐
7. I agree to give the study a spit sample for looking at my genes. (*Optional* – you can still participate and not agree to this bit).	☐
8. I agree to my appointments being recorded. (*Optional* – you can still participate and not agree to this bit).	☐
9. I agree to take part in the study.	☐

If you do want to take part, please sign below:

Name of child/young person	Name of Parent/caregiver	Date	Signature

Name of person taking consent	Date	Signature

Child/Young person assent form (8-15 year old), DECRYPT v2.0 (20/1/2018), IRAS no. 188916
When completed: 1 for participant; 1 for researcher site file; 1 (original) to be kept in medical notes.

DECRYPT Child Consent form 16+

Site number: _____

Participant ID number: _____

YOUNG PERSON CONSENT FORM

Title of project: **DECRYPT – Delivery of Cognitive Therapy for Young People after Trauma**

		Please *INITAL* box if YES
1.	I have read an information sheet (v2.0, dated 20/1/2018) about this study (or someone read the information sheet to me). I have had the chance to ask questions about this study, and my questions were properly answered.	
2.	I understand that I don't have to take part in this study unless I want to, and that I can stop taking part in the study any time I want. If I decide I don't want to take part in this study I understand that this will NOT affect the care I receive.	
3.	I understand that relevant sections of my medical notes and data collected during the study, may be looked at by trial team members from University of East Anglia, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records. I give permission for my contact details and a copy of this consent form to be kept confidentially and securely by the trial team at University of East Anglia and I agree that the trial team can send me study questionnaires and can contact me by telephone or post.	
4.	I understand that the information collected about me may be shared *anonymously* with other researchers. (*Optional* – you can still participate and not agree to this bit)	
5.	I agree to my General Practitioner being informed of my participation in the study.	
6.	I consent to being contacted about future research.	
7.	I consent to audio recordings being made of assessments and clinical sessions I am involved with. (*Optional* – you can still participate and not agree to this bit)	
8.	I agree to provide a spit sample for genetics analysis. (*Optional* – you can still participate and not agree to this bit)	
9.	I consent to take part in the study.	

Name of child/young person	Name of Parent/caregiver (if appropriate)	Date	Signature

Name of person taking consent	Date	Signature

Young person consent form (16+ years), DECRYPT v2.0 (20/1/2018), IRAS no. 188916
When completed: 1 for participant; 1 for researcher site file; 1 (original) to be kept in medical notes.

DECRYPT Parent Consent Form 8-15 years



Norfolk and Suffolk NHS Foundation Trust

National Institute for Health Research

University of East Anglia

Site number: _____

Participant ID number: _____

PARENT or CAREGIVER CONSENT FORM

Title of project: **DECRYPT – Delivery of Cognitive Therapy for Young People after Trauma**

Name of Researcher: _____

	Please *INITIAL* box
1. I confirm that I have read an information sheet (version 2.0, dated 20/1/2018) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
2. I understand that my child's participation is voluntary and that we are free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.	☐
3. I understand that relevant sections of my child's medical notes and data collected during the study, may be looked at by trial team members from University of East Anglia, from regulatory authorities or from the NHS Trust, where it is relevant to my child's taking part in this research. I give permission for these individuals to have access to my child's records. I give permission for my contact details and a copy of this consent form to be kept confidentially and securely by the trial team at University of East Anglia and I agree that the trial team can send me study questionnaires and can contact me by telephone or post.	☐
4. I understand that some information collected about my child and me may be shared *anonymously (i.e. not identifying me or my child)* with other researchers. (*Optional* – you can still participate and not agree to this bit)	☐
5. I agree to my General Practitioner being informed of my child's participation in the study.	☐
6. I consent to being contacted about future research.	☐
7. I consent to audio recordings being made of assessments and clinical sessions involving myself and my child. (*Optional* – you can still participate and not agree to this bit)	☐
8. I consent to my child providing a saliva sample for genetics analysis. (*Optional* – you can still participate and not agree to this bit)	☐
9. I consent to my child and myself taking part in the above study.	☐

Name of child/young person	Name of Parent/caregiver	Date	Signature

Name of person taking consent	Date	Signature

Parent/caregiver consent form (8-15 year old), DECRYPT v2.0 (20/1/2018), IRAS no. 188916
When completed: 1 for participant; 1 for researcher site file; 1 (original) to be kept in medical notes.

DECRYPT Parent Assent Form

Site number: _____

Participant ID number: _____

PARENT or CAREGIVER ASSENT FORM

Title of project: **DECRYPT – Delivery of Cognitive Therapy for Young People after Trauma**

Name of Researcher: _____

	Please *INITIAL* box
1. I confirm that I have read an information sheet (version 2.0, dated 20/1/2018) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
2. I understand that my child's participation is voluntary and that we are free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.	☐
3. I understand that relevant sections of my child's medical notes and data collected during the study, may be looked at by trial team members from University of East Anglia, from regulatory authorities or from the NHS Trust, where it is relevant to my child's taking part in this research. I give permission for these individuals to have access to my child's records. I give permission for my contact details and a copy of this consent form to be kept confidentially and securely by the trial team at University of East Anglia and I agree that the trial team can send me study questionnaires and can contact me by telephone or post.	☐
4. I understand that some information collected about my child and me may be shared *anonymously (i.e. not identifying me or my child)* with other researchers. (*Optional* – you can still participate and not agree to this bit)	☐
5. I agree to my General Practitioner being informed of my child's participation in the study.	☐
6. I agree to being contacted about future research.	☐
7. I agree to audio recordings being made of assessments and clinical sessions involving myself and my child. (*Optional* – you can still participate and not agree to this bit)	☐
8. I agree to my child providing a saliva sample for genetics analysis. (*Optional* – you can still participate and not agree to this bit)	☐
9. I agree to my child and myself taking part in the above study.	☐

Name of child/young person	Name of Parent/caregiver	Date	Signature

Name of person taking consent	Date	Signature

Parent/caregiver assent form (yp 16+), DECRYPT v2.0 (20.1.2018), IRAS no. 188916
When completed: 1 for participant; 1 for researcher site file; 1 (original) to be kept in medical notes.

Appendix G: Ethics Approval

Re issue letter 21.10.2016

NHS
Health Research Authority

East of England - Cambridge South Research Ethics Committee
The Old Chapel
Royal Standard Place
Nottingham
NG1 6FS

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

18 July 2016

Dr Richard Meiser-Stedman
Reader in Clinical Psychology
University of East Anglia
Department of Clinical Psychology,
Elizabeth Fry Building
UEA, Norwich
NR4 7TJ

Dear Dr Meiser-Stedman

Study title:	**Cognitive Therapy for the treatment of post-traumatic stress disorder (PTSD) in youth exposed to multiple traumatic stressors: a phase II randomised controlled trial.**
REC reference:	**16/EE/0233**
Protocol number:	**1.0**
IRAS project ID:	**188916**

Thank you for your letter of 5 July 2016, responding to the Committee's 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 and Dr Richard Aldridge.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this opinion letter. Should you wish to provide a substitute contact point, require

further information, or wish to make a request to postpone publication, please contact the REC Manager, Ellen Swainston, nrescommittee.eastofengland-cambridgesouth@nhs.net.

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.

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for NHS permission for research is available in the Integrated Research Application System, www.hra.nhs.uk or at http://www.rdforum.nhs.uk.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database within 6 weeks of recruitment of the first participant (for medical device studies, within the timeline determined by the current registration and publication trees).

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

Re issue letter 21.10.2016

If a sponsor wishes to contest the need for registration they should contact Catherine Blewett (catherineblewett@nhs.net), the HRA does not, however, expect exceptions to be made. Guidance on where to register is provided within IRAS.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Non-NHS sites

The Committee has not yet completed any site-specific assessment (SSA) for the non-NHS research site(s) taking part in this study. The favourable opinion does not therefore apply to any non-NHS site at present. We will write to you again as soon as an SSA application(s) has been reviewed. In the meantime no study procedures should be initiated at non-NHS sites.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Covering letter on headed paper [Response to REC, 5th July 2016]		05 July 2016
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [Sponsor letter - Insurance & Indemnity]	1	06 May 2016
GP/consultant information sheets or letters [GP notification letter]	1	30 April 2016
IRAS Application Form [IRAS_Form_09052016]		09 May 2016
IRAS Checklist XML [Checklist_05072016]		05 July 2016
Letter from funder [NIHR funding contract]	Final contract	01 April 2016
Other [Statement of Activities]	3	30 April 2016
Other [Schedule of Events]	3	
Participant consent form [Trial, child assent (8-15 years)]	1.1	22 June 2016
Participant consent form [Trial, child/YP consent (16-17 yrs)]	1.1	22 June 2016
Participant consent form [Trial, parent consent (child 8-15 yrs)]	1.1	22 June 2016
Participant consent form [Trial, parent assent (YP 16-17 yrs)]	1.1	22 June 2016
Participant consent form [Qual, staff/commissioner/researcher consent form]	1.1	21 June 2016
Participant consent form [Qualitative sub-study, child assent (8-15 yrs)]	1.1	22 June 2016
Participant consent form [Qual sub-study, 8-15 yrs assent form, WITHDRAWN]	1.0	22 June 2016
Participant consent form [Qualitative sub-study, child/YP consent (16-17 yrs)]	1.1	04 July 2016
Participant consent form [Qual sub-study, child/YP consent (16-17	1.0	22 June 2016

yrs), WITHDRAWN]		
Participant consent form [Qualitative sub-study, parent consent]	1.1	04 July 2016
Participant consent form [Qual sub-study, parent consent, WITHDRAWN]	1.0	22 June 2016
Participant information sheet (PIS) [Qualitative sub-study, child PIS, 8-11 years]	1.0	04 May 2016
Participant information sheet (PIS) [Qualitative sub-study, child PIS, 12-15 years]	1.0	04 May 2016
Participant information sheet (PIS) [Trial, child PIS, 8-11 years]	1.1	22 June 2016
Participant information sheet (PIS) [Trial, child PIS, 12-15 years]	1.1	21 June 2016
Participant information sheet (PIS) [Trial, child/YP PIS, 16-17 years]	1.1	21 June 2016
Participant information sheet (PIS) [Trial, parent/carer PIS]	1.1	21 June 2016
Participant information sheet (PIS) [Qual, staff/commissioner/researcher PIS]	1.1	21 June 2016
Participant information sheet (PIS) [Qual, child PIS, 8-11 WITHDRAWN]	1.0	22 June 2016
Participant information sheet (PIS) [Qual, child PIS, 12-15 WITHDRAWN]	1.0	22 June 2016
Participant information sheet (PIS) [Qualitative sub-study, child/YP PIS, 16-17 years]	1.1	04 July 2016
Participant information sheet (PIS) [Qual, child PIS, 16-17yrs WITHDRAWN]	1.0	22 June 2016
Participant information sheet (PIS) [Qualitative sub-study, parent PIS]	1.1	04 July 2016
Participant information sheet (PIS) [Qual sub-study, parent PIS, WITHDRAWN]	1.0	22 June 2016
Referee's report or other scientific critique report [NIHR Fellowship application reviews]		30 July 2015
Research protocol or project proposal [DECRYPT trial protocol]	1	04 May 2016
Summary CV for Chief Investigator (CI) [Richard Meiser-Stedman CV]	04/2016	30 April 2016
Validated questionnaire [Child baseline interview]	1	
Validated questionnaire [Child baseline questionnaires]	1	04 May 2016
Validated questionnaire [Child 2.5 month questionnaires]	1	04 May 2016
Validated questionnaire [Parent baseline questionnaires]	1	04 May 2016
Validated questionnaire [Parent baseline interview]	1.1	20 June 2016
Validated questionnaire [Baseline Child & Adolescent Service Use Schedule (CA-SUS)]	1.1	20 June 2016

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document *"After ethical review – guidance for researchers"* gives detailed

guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

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

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/

HRA Training

We are pleased to welcome researchers and R&D staff at our training days – see details at http://www.hra.nhs.uk/hra-training/

16/EE/0233	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project.

Yours sincerely

pp. L. Gelling

Dr Leslie Gelling
Chair

Email: nrescommittee.eastofengland-cambridgesouth@nhs.net

Enclosures: "After ethical review – guidance for researchers"

Copy to: *Ms Yvonnne Kirkham*
Dr Bonnie Teague

Appendix H

The Child Revised Impact of Events Scale- 8 item



CRIES–8

Date: ☐☐/☐☐/20☐☐ Time: ☐☐h☐☐m

Below is a list of comments made by people after stressful life events. Please mark each item showing how frequently these comments were true for you during the past seven days. If they did not occur during that time please mark the 'not at all' box.

	Frequency during the last week:	0	1	3	5
1	Do you think about it even when you don't mean to?	Not at all	Rarely	Sometimes	Often
2	Do you try to remove it from your memory?	Not at all	Rarely	Sometimes	Often
3	Do you have waves of strong feelings about it?	Not at all	Rarely	Sometimes	Often
4	Do you stay away from reminders of it (e.g. places or situations)?	Not at all	Rarely	Sometimes	Often
5	Do you try not to talk about it?	Not at all	Rarely	Sometimes	Often
6	Do pictures about it pop into your mind?	Not at all	Rarely	Sometimes	Often
7	Do other things keep making you think about it?	Not at all	Rarely	Sometimes	Often
8	Do you try not to think about it?	Not at all	Rarely	Sometimes	Often

Appendix I

McLean Screening Inventory for Borderline Personality Traits- Carer Version

MacLean Screening Instrument (Carer)

1.	Has your child's close relationships been troubled by a lot of arguments or repeated break-ups?	Yes____ No____
2.	Has your child deliberately hurt him/herself physically (e.g. punched, cut or burnt him/herself)? How about made a suicide attempt?	Yes____ No____
3.	Have they had at least two other problems with acting impulsively (e.g. eating binges and spending sprees, drinking too much, verbal outbursts)?	Yes_____ No____
4.	Have they been extremely moody?	Yes_____ No____
5.	Do you think they feel very angry a lot of the time? How about often acted in an angry or sarcastic manner?	Yes_____ No____
6.	Do you think they have often been distrustful of other people?	Yes_____ No____
7.	Do you think, or have they ever told you they frequently feel unreal or as if things around them are unreal?	Yes_____ No____
8.	Do you think, or have they ever told you that they feel chronically empty?	Yes_____ No____
9.	Do you think, or have they ever told you they have no idea of who they are, or that they have no identity? (e.g. excessively confused about their self-image)	Yes_____ No____
10.	Have they made desperate efforts to avoid feeling abandoned or being abandoned (e.g., repeatedly called someone to reassure themselves that the other person still cared, begged them not to leave, clung to them physically)?	Yes_____ No____

Appendix J: Sensitivity Analysis of the Empirical Paper

Table S1. Moderators of the relationship between baseline PTSS and PTSS at post-treatment

Moderator Variable	Model	IVs	B	SE	β	*t*	*p*	*p*
Demographic variables								
Age	1	Age	0.463	0.446	0.100	1.039	0.299	
		CRIES-8, base	0.632	0.188	0.328	3.366	0.001	
	2	Age	0.569	2.234	0.123	0.255	0.799	
		CRIES-8, base	0.683	1.068	0.354	0.639	0.523	
		Interaction	-0.003	0.071	-0.040	-0.048		0.962
Male sex	1	Male sex	-6.815	2.379	-0.266	-2.865	0.004	
		CRIES-8, base	0.578	0.181	0.301	3.202	0.001	
	2	Male sex	8.598	11.449	0.335	0.751	0.453	
		CRIES-8, base	0.768	0.226	0.400	3.400	0.001	
		Interaction	-0.508	0.370	-0.615	-1.375		0.169
Ethnicity	1	White British	0.164	2.631	0.006	0.062	0.950	
		CRIES-8, base	0.669	0.187	0.348	3.581	0.000	
	2	White British	7.648	14.037	0.285	0.545	0.586	
		CRIES-8, base	0.865	0.407	0.449	2.125	0.034	
		Interaction	-0.249	0.458	-0.317	-0.543		0.587
Trauma history variables								
Trauma types	1	Trauma types	-0.533	0.498	-0.100	-1.069	0.285	
		CRIES-8, base	0.667	0.184	0.347	3.621	0.000	
	2	Trauma types	-6.356	2.588	-1.202	-2.456	0.014	
		CRIES-8, base	-0.233	0.432	-0.122	-0.540	0.589	
		Interaction	0.185	0.081	1.238	2.291		0.022
Sexual trauma	1	Sexual trauma	-0.431	2.218	-0.018	-0.194	0.846	
		CRIES-8, base	0.671	0.185	0.349	3.624	0.000	

	2	Sexual trauma	-40.268	11.025	-1.748	-3.652	0.000	
		CRIES-8, base	0.072	0.238	0.038	0.303	0.762	
		Interaction	1.278	0.347	1.824	3.679		0.000
Intrafam.ab	1	Intrafam.ab	4.466	2.573	0.169	1.736	0.083	
		CRIES-8, base	0.686	0.183	0.358	3.759	0.000	
	2	Intrafam.ab	-13.748	19.193	-0.521	-0.716	0.474	
		CRIES-8, base	0.168	0.570	0.088	0.295	0.768	
		Interaction	0.576	0.602	0.734	0.958		0.338
Comorbidity								
BPD	1	BPD	0.129	0.525	0.028	0.246	0.806	
		CRIES-8, base	0.427	0.211	0.230	2.031	0.042	
	2	BPD	-1.884	2.419	-0.413	-0.779	0.436	
		CRIES-8, base	0.012	0.531	0.006	0.022	0.982	
		Interaction	0.069	0.081	0.531	0.853		0.394
DSO	1	DSO	0.424	0.158	0.289	2.684	0.007	
		CRIES-8, base	0.355	0.214	0.185	1.658	0.097	
	2	DSO	-0.752	0.711	-0.508	-1.057	0.290	
		CRIES-8, base	-0.368	0.475	-0.190	-0.773	0.439	
		Interaction	0.037	0.022	1.081	1.695		0.090
Dissociation	1	Dissociation	0.552	0.490	0.120	1.127	0.260	
		CRIES-8, base	0.567	0.206	0.294	2.757	0.006	
	2	Dissociation	-1.501	2.499	-0.324	-0.600	0.548	
		CRIES-8, base	0.183	0.502	0.095	0.365	0.715	
		Interaction	0.065	0.077	0.580	0.837		0.402
Depression	1	Depression	0.233	0.213	0.126	1.095	0.273	
		CRIES-8, base	0.540	0.219	0.281	2.468	0.014	
	2	Depression	0.629	1.001	0.341	0.629	0.530	
		CRIES-8, base	0.758	0.581	0.395	1.305	0.192	
		Interaction	-0.013	0.031	-0.296	-0.405		0.686

Anxiety	1	Anxiety	0.353	0.305	0.301	1.155	0.248	
		CRIES-8, base	0.579	0.200	0.301	2.893	0.004	
	2	Anxiety	-1.402	1.416	-0.477	-0.990	0.322	
		CRIES-8, base	-0.084	0.559	-0.044	-0.151	0.880	
		Interaction	0.058	0.045	0.819	1.268		0.205
Panic	1	Panic	0.220	0.173	0.136	1.275	0.202	
		CRIES-8, base	0.552	0.206	0.287	2.687	0.007	
	2	Panic	-1.257	0.907	-0.773	-1.386	0.166	
		CRIES-8, base	-0.039	0.410	-0.020	-0.096	0.924	
		Interaction	0.047	0.028	1.115	1.658		0.097
Voice hearing	1	Voice hearing	1.758	2.321	0.076	0.757	0.449	
		CRIES-8, base	0.637	0.190	0.331	3.357	0.001	
	2	Voice hearing	-7.572	13.909	-0.325	-0.544	0.584	
		CRIES-8, base	0.559	0.221	0.290	2.525	0.012	
		Interaction	0.290	0.427	0.419	0.680		0.496

[1]Intrafamilial abuse, PTSS=post-traumatic stress symptoms; IVs= independent variables; CRIES-8= Child Revised Impact of Events Scale - 8 item; BPD=borderline personality disorder symptoms; DSO= disturbances of self-organisation symptoms

Figure S1. Moderating effects of number of trauma types on CRIES-8 scores at baseline to posttreatment

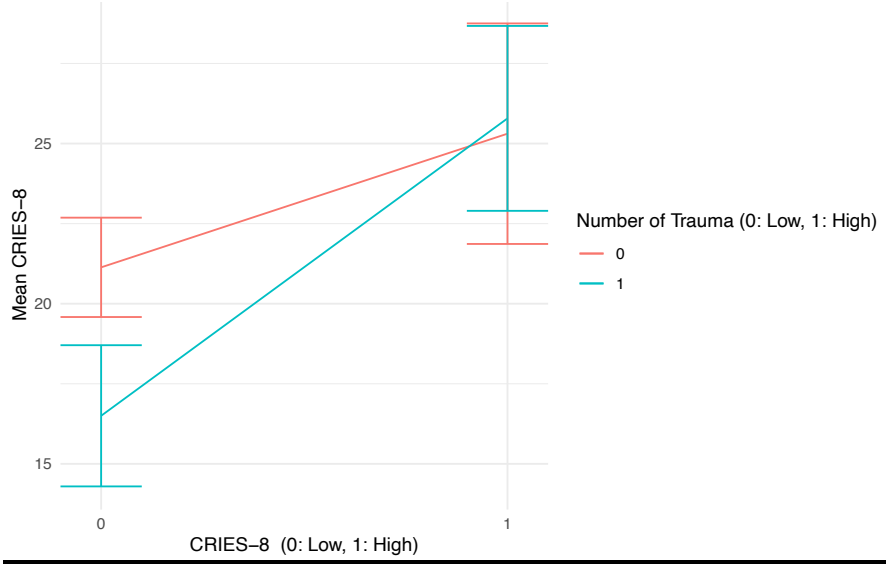


Figure S2. Moderating effects of sexual trauma on CRIES-8 scores at baseline to posttreatment

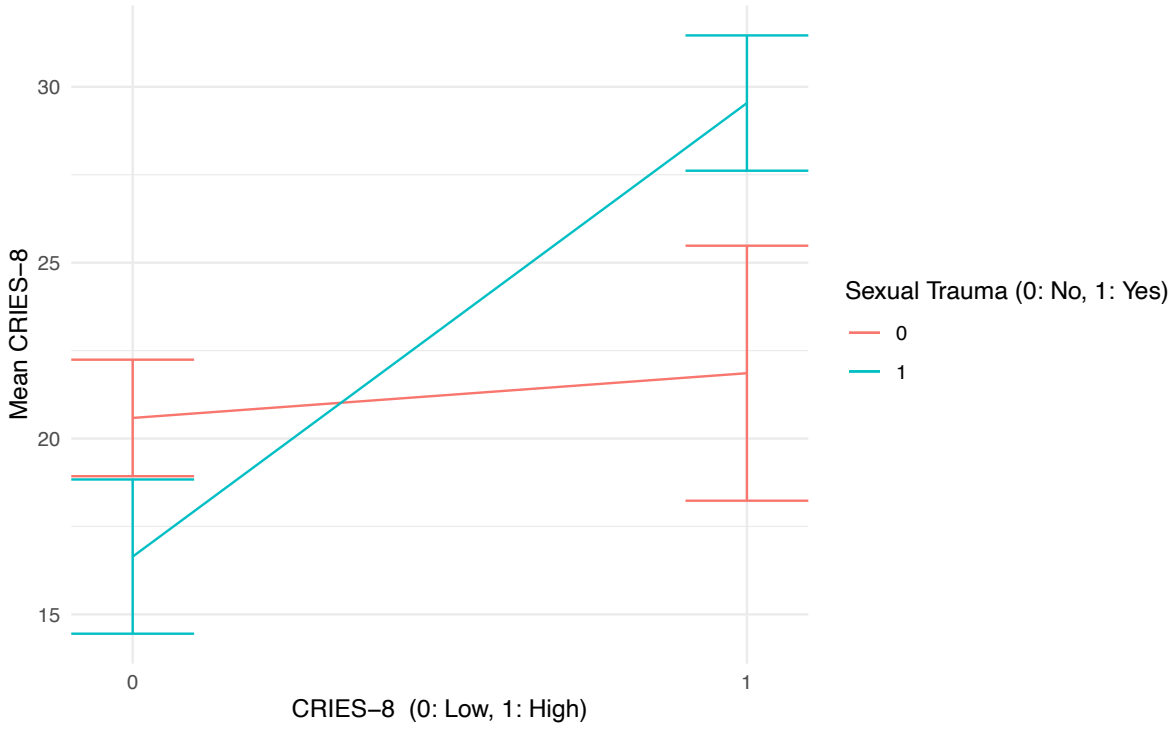


Table S2. Moderators of the relationship between treatment arm and PTSS post-treatment

Moderator Variable	Model	IVs	B	SE	β	*t*	*p*	*p*
Demographic variables								
Age	1	Age	0.884	0.457	0.193	1.932	0.053	
		Arm	-4.569	2.283	-0.200	-2.002	0.045	
	2	Age	0.817	0.565	0.178	1.446	0.148	
		Arm	-7.477	14.607	-0.327	-0.512	0.609	
		Interaction	0.194	0.962	0.133	0.202		0.840
Male sex	1	Male sex	-9.221	2.425	-0.360	-3.802	0.000	
		Arm	-5.407	2.181	-0.236	-2.478	0.013	
	2	Male sex	-11.471	3.174	-0.447	-3.614	0.000	
		Arm	-6.846	2.539	-0.298	-2.696	0.007	
		Interaction	5.317	4.879	0.134	1.090		0.276
Ethnicity	1	White British	1.198	2.739	0.045	0.437	0.662	
		Arm	-3.915	2.303	-0.171	-1.700	0.089	
	2	White British	-2.476	3.985	-0.092	-0.621	0.534	
		Arm	-9.217	4,787	-0.402	-1.925	0.054	
		Interaction	6.865	5.447	0.289	1.260		0.208
Trauma history variables								
Trauma types	1	Trauma types	-0.678	0.525	-0.128	-1.291	0.197	
		Arm	-4.297	2.299	-0.188	-1.869	0.062	
	2	Trauma types	-0.793	0.868	-0.150	-1.155	0.248	
		Arm	-5.574	5.433	-0.243	-1.026	0.305	
		Interaction	0.277	1.066	0.063	0.259		0.795
Sexual trauma	1	Sexual trauma	0.173	2.337	0.007	0.074	0.941	
		Arm	-3.9688	2.313	-0.173	-1.716	0.086	
	2	Sexual trauma	0.872	3.384	0.037	0.258	0.797	
		Arm	-3.402	3.046	-0.148	-1.117	0.264	

		Interaction	-1.335	4.677	-0.049	-0.285		0.775
Intrafam.ab	1	Intrafam.ab	-3.831	2.282	-0.167	-1.679	0.093	
		Arm	3.796	2.714	0.143	1.399	0.162	
	2	Intrafam.ab	2.224	3.975	0.084	0.560	0.576	
		Arm	-6.100	4.776	-0.266	-1.277	0.201	
		Interaction	2.938	5.434	0.122	0.541		0.589
Comorbidity								
BPD	1	BPD	0.200	0.527	0.044	0.380	0.704	
		Arm	-4.209	2.457	-0.190	-1.713	0.087	
	2	BPD	0.167	0.760	0.037	0.220	0.826	
		Arm	-4.618	7.164	-0.209	-0.645	0.519	
		Interaction	0.064	1.055	0.021	0.061		0.951
DSO	1	DSO	0.561	0.132	0.383	4.245	0.000	
		Arm	-3.854	2.114	-0.169	-1.823	0.068	
	2	DSO	0.542	0.196	0.370	2.769	0/006	
		Arm	-4.671	6.533	-0.205	-0.715	0.475	
		Interaction	0.035	0.265	0.041	0.132		0.895
Dissociation	1	Dissociation	1.128	0.449	0.245	2.513	0.012	
		Arm	-3.757	2.233	-0.164	-1.682	0.092	
	2	Dissociation	0.986	0.650	0.214	1.516	0.129	
		Arm	-5.581	6.408	-0.244	-0.871	0.384	
		Interaction	0.273	0.899	0.092	0.304		0.761
Depression	1	Depression	0.500	0.183	0.271	2.741	0.006	
		Arm	-3.587	2.223	-0.156	-1.614	0.107	
	2	Depression	0.392	0.263	0.213	1.492	0.136	
		Arm	-7.645	7.444	-0.334	-1.027	0.304	
		Interaction	0.208	0.365	0.192	0.571		0.568
GAD	1	GAD	0.645	0.292	0.221	2.211	0.027	
		Arm	-3.295	2.267	-0.144	-1.454	0.1465	

	2	GAD	0.607	0.405	0.208	1.501	0.133	
		Arm	-4.239	7.334	-0.186	-0.578	0.563	
		Interaction	0.079	0.584	0.045	0.135		0.892
Panic	1	Panic	0.452	0.157	0.280	2.877	0.004	
		Arm	-4.428	2.217	-0.194	-1.998	0.046	
	2	Panic	0.395	0.212	0.245	1.868	0.062	
		Arm	-6.216	4.989	-0.272	-1.246	0.213	
		Interaction	0.126	0.315	0.098	0.400		0.689
Voice hearing	1	Voice hearing	3.668	2.350	0.158	1.561	0.119	
		Arm	-4.049	2.276	-0.176	-1.779	0.075	
	2	Voice hearing	3.459	3.383	0.149	1.023	0.307	
		Arm	-4.200	2.877	-0.183	-1.460	0.144	
		Interaction	0.404	4.703	0.014	0.086		0.931

[1]Intrafamilial abuse, PTSS=post-traumatic stress symptoms; IVs= independent variables; CRIES-8= Child Revised Impact of Events Scale - 8 item; BPD=borderline personality disorder symptoms; DSO= disturbances of self-organisation symptoms